

Proposed Standard Plan Changes.

July 2, 2015

PART III

Dimit, Eric S

From: Eiche, John R
Sent: Wednesday, October 15, 2014 10:40 AM
To: Dimit, Eric S
Subject: FW: rumble strip detail
Attachments: 73307Sht002mTyp.dgn

Eric,
Here's is a detail for Rumble Strips on white paving, we'll see if the Committee wants it in the new Standard Plans.

From: Oxoby, Steve R. [Steve.Oxoby@jacobs.com]
Sent: Tuesday, October 14, 2014 8:58 AM
To: Eiche, John R
Subject: FW: rumble strip detail

John, this sheet has our rumble strip detail for PCCP. It has been looked at by Will Young and Jim Ceragoli.

Steve

Steven Oxoby
Jacobs
1027 S Carson St., Suite A&B
Carson City, Nevada 89701

Mobile (preferred method of contact): 775-742-7224
Direct Phone: 775-850-5108
Main Phone: 775-850-5100
Fax: 775-850-5115
Email: steve.oxoby@jacobs.com
Web site: www.Jacobs.com

From: Miller, Harold
Sent: Tuesday, October 14, 2014 8:53 AM
To: Oxoby, Steve R.
Subject: RE: rumble strip detail

Here it is.

From: Oxoby, Steve R.
Sent: Tuesday, October 14, 2014 8:38 AM
To: Miller, Harold
Cc: Taylor, Ben; Hagel, Steven A.
Subject: rumble strip detail

Harold, can you send me a DGN file of the rumble strip sheet, 2M? NDOT would like to add the rumble strip for PCCP detail to their standard plans.

Steve

Steven Oxoby

Jacobs
1027 S Carson St., Suite A&B
Carson City, Nevada 89701

Mobile (preferred method of contact): 775-742-7224

Direct Phone: 775-850-5108

Main Phone: 775-850-5100

Fax: 775-850-5115

Email: steve.oxoby@jacobs.com

Web site: www.Jacobs.com



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: Type III Headwall (The Baer Experience)

Note: A separate form is required for each standard detail.

Previously used: Contract Number: 3481

Contract Sheet Numbers: DD1

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: The headwall provides for longer wings, which are effective in reducing the rivulets that typically form around a headwall and wash away the backfill behind the wall.

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Requestor Information: Name: Brian Matthews of Hydraulics

Phone: Ext. 7621

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

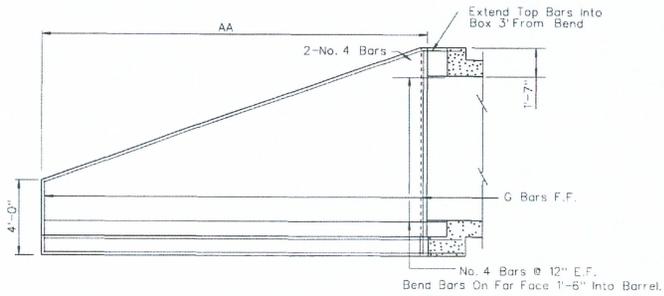
Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

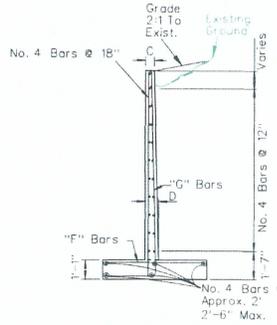
Reviewed by: Signature: _____ Date: _____

Notes:
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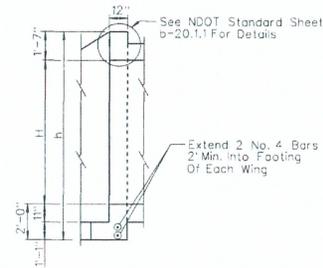
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA	SPF-095-2(050)	NYE	DD1



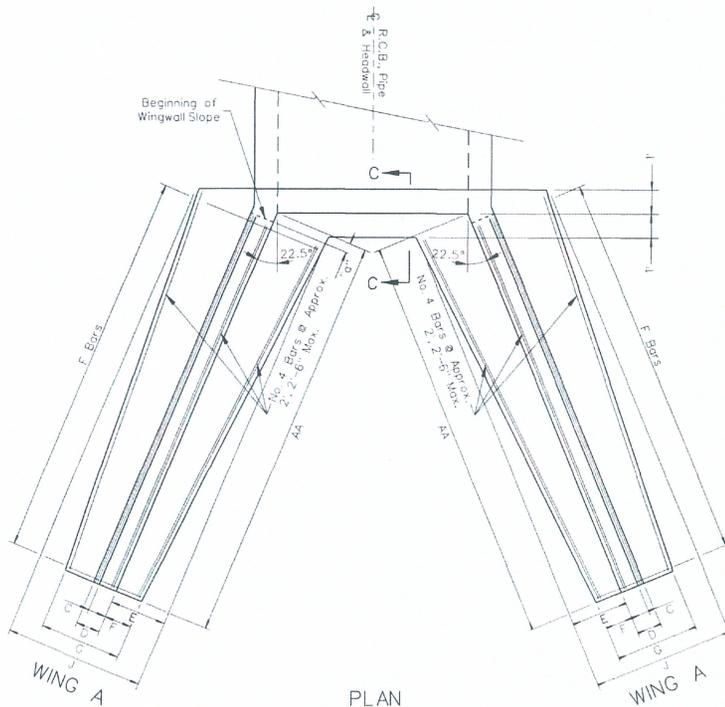
WING SECTION



SECTION OF WING



SECTION C-C



PLAN

$\alpha = \text{Ctan } (22.5^\circ \text{ -Skew})$

		MODIFIED TYPE I HEADWALL DIMENSIONS									
		0° SKEW									
H-Height in Feet	h= All Wings Except h= B For 45° Skew	WINGS A&B									
		AA & BB	C & D	E	F	G	J	G BARS	F BARS	SIZE	SPACING
4	7-7	10-9	8	1-6	1-2	2-10	3-10	4	12	4	12
5	8-7	13-9	8	1-9	1-3	3-1	4-4	4	12	4	12
6	9-7	16-9	8	1-11	1-4	3-4	4-10	4	10 1/2	4	12
7	10-7	19-9	8	2-2	1-6	3-8	5-4	4	7	4	12
8	11-7	22-9	8	2-4	1-7	3-11	5-10	6	10 1/2	4	11

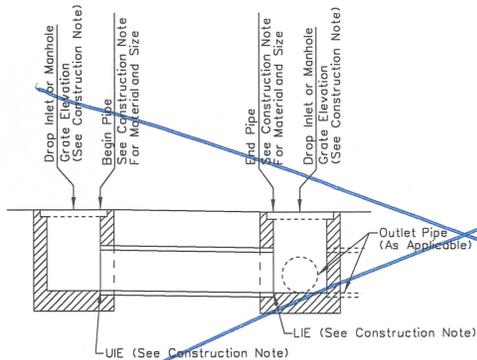
* For the Headwall for Culverts at Stations 10+489-28 to 10+489-39 and 10+488-71 Assume h = 5

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

**MODIFIED TYPE I
HEADWALL**

Note: For General Notes See Sheet B-20.1 and R-2.5.2

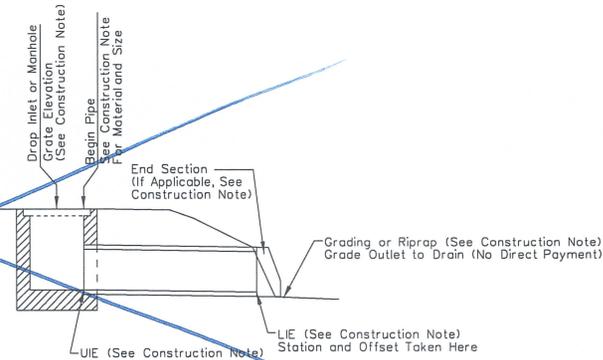
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA	NHP-050-2(013)	CARSON CITY	DD1



Note:
Details for typical structure-to-structure connections
See NDOT Standard Details for additional information

Hydraulic Structure Connection

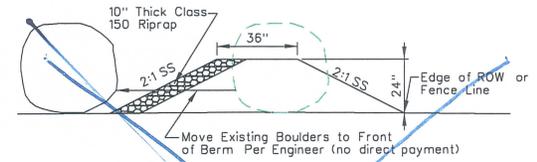
NTS



Note:
Details for typical structure-to-ground installations
See NDOT Standard Details for additional information

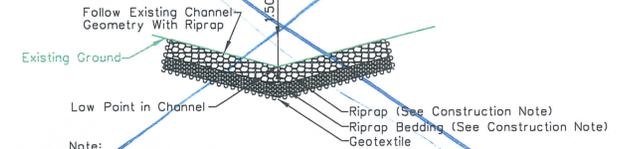
Hydraulic Structure to Ground Installation

NTS



Riprap Berm

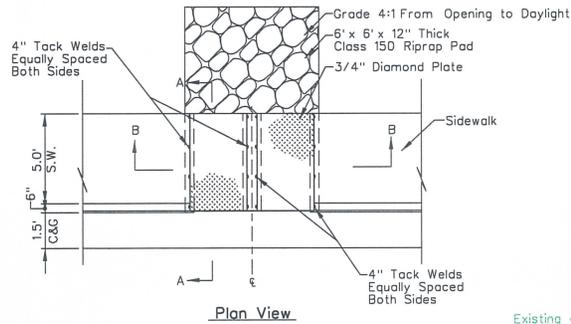
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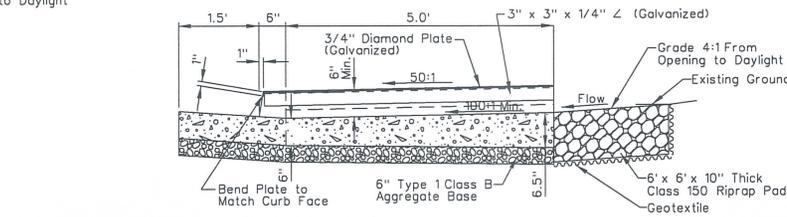
Note:
Where applicable, wrap around culvert inlets and outlets.
All other information per NDOT Standard Plans R-1.4.1 and R-3.1.5

Modified Riprap Lined Channel

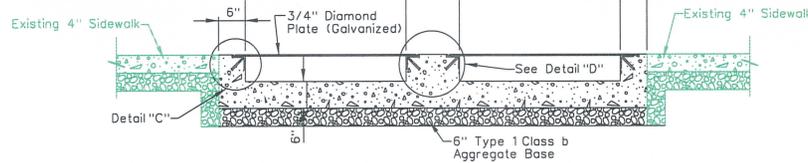
NTS



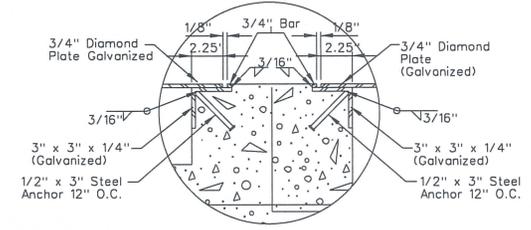
Plan View



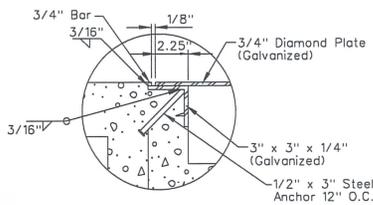
Section A-A



Section B-B



Detail "D"



Detail "C"

Notes:

STATION AND OFFSET APPROXIMATE. VERIFY LOCATION OF UNDERDRAIN WITH ENGINEER.

ALL CONCRETE SHALL BE CLASS AA.

ALL EXPOSED METAL PARTS SHALL BE GALVANIZED AND ALL GALVANIZING DAMAGED BY FABRICATION OR INSTALLATION SHALL RECEIVE TWO COATS OF ALUMINUM PAINT (GALVONOX OR EQUAL).

Sidewalk Underdrain Detail

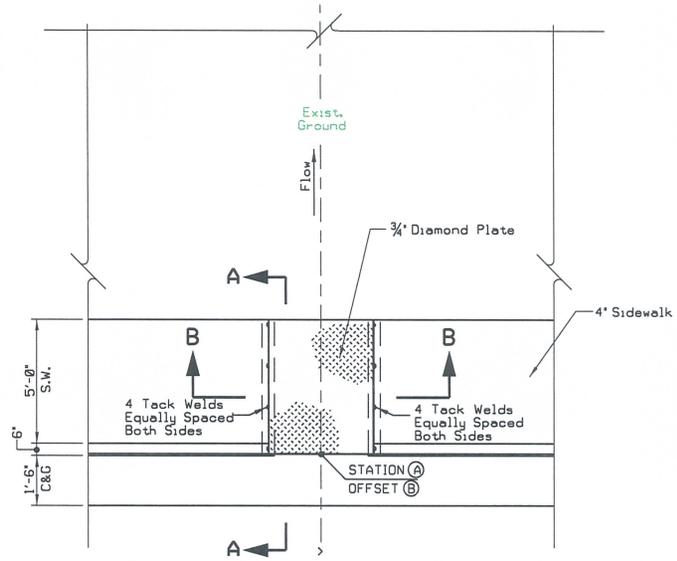
NTS

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

**DRAINAGE
DETAIL**

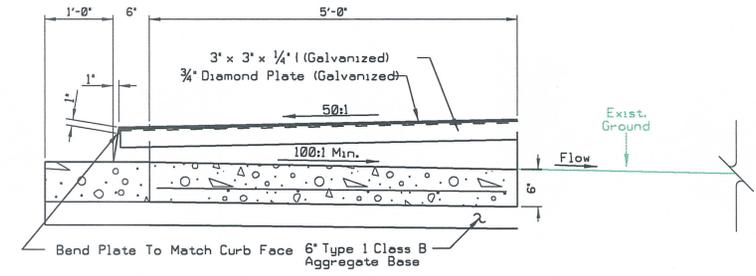
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA	SPSR-0593(002)	CLARK	DD2

- NOTES:
1. ALL CONCRETE SHALL BE CLASS AA.
 2. IF WIDTH OF PLATE IS GREATER THAN 24", A SPECIAL DESIGN IS REQUIRED.
 3. ALL EXPOSED METAL PARTS SHALL BE GALVANIZED AND ALL GALVANIZING DAMAGED BY FABRICATION OR INSTALLATION SHALL RECEIVE TWO COATS OF ALUMINUM PAINT (GALVONOX OR EQUAL).
 4. ALL DIAMOND PLATING SHALL BE SLIP RESISTANT

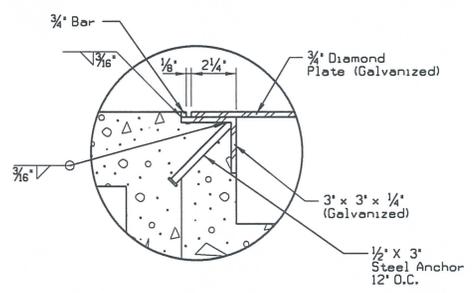


PLAN

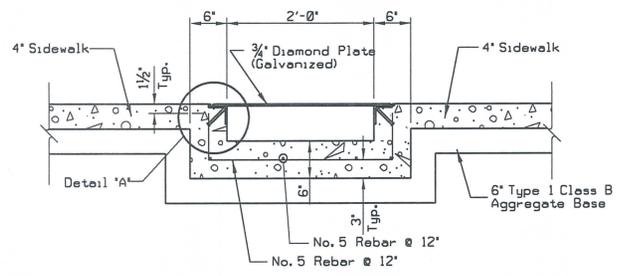
① ②
"L1" 115+63 44.5' RT



SECTION A-A



DETAIL 'A'

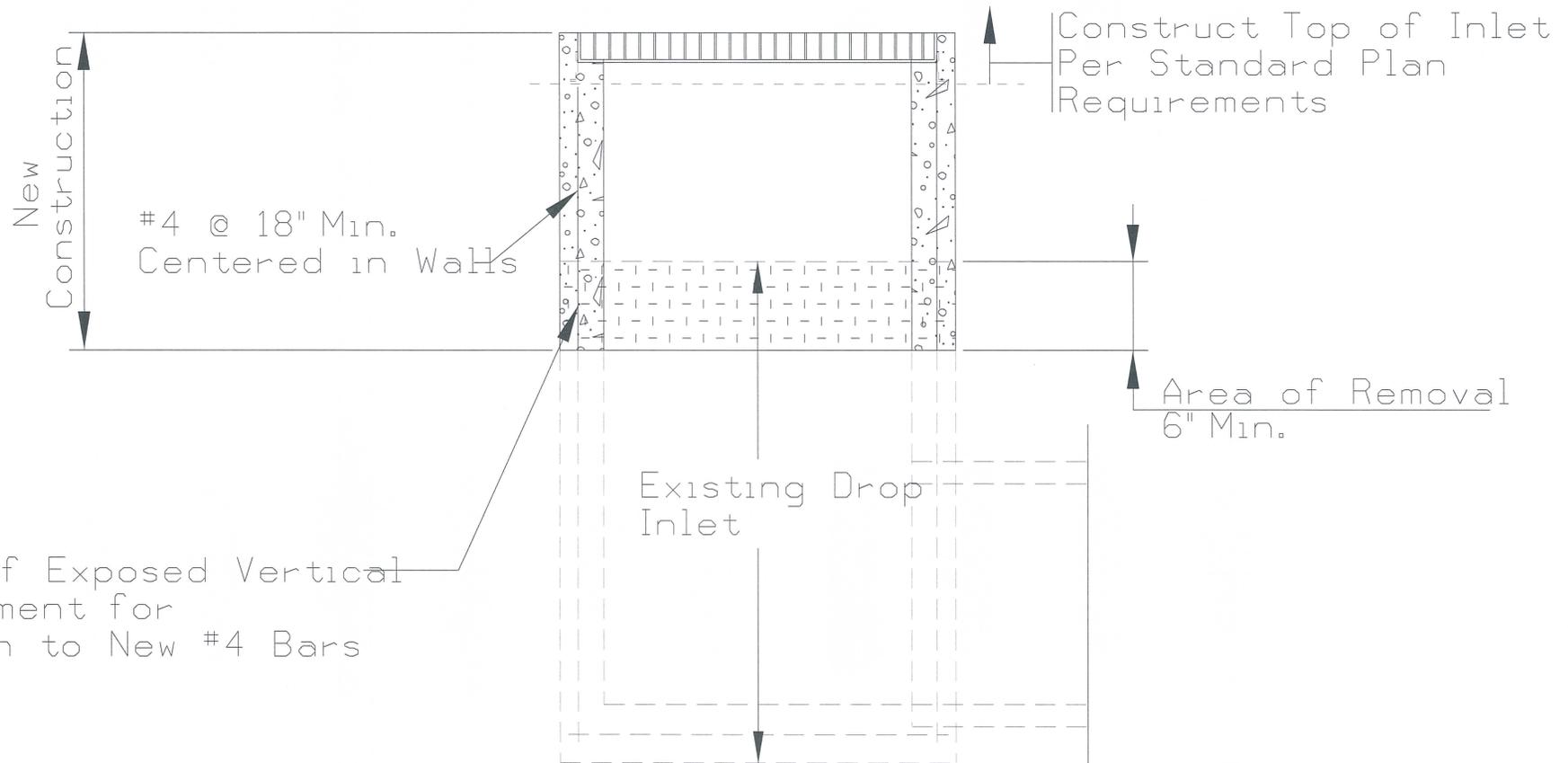


SECTION B-B

"L1" 115+63

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

**SIDEWALK
UNDERDRAIN
DETAILS**

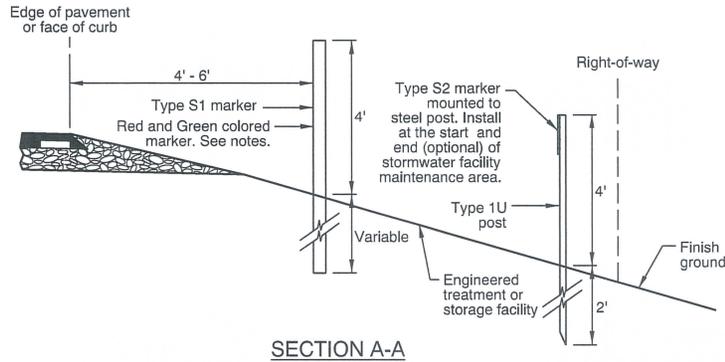


Leave 6" of Exposed Vertical Reinforcement for Connection to New #4 Bars

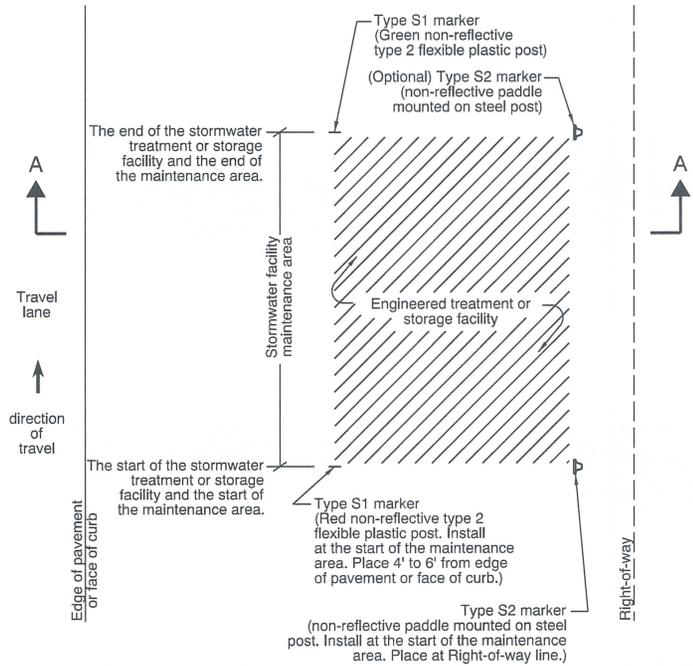
ADJUSTING DROP INLET

Note:

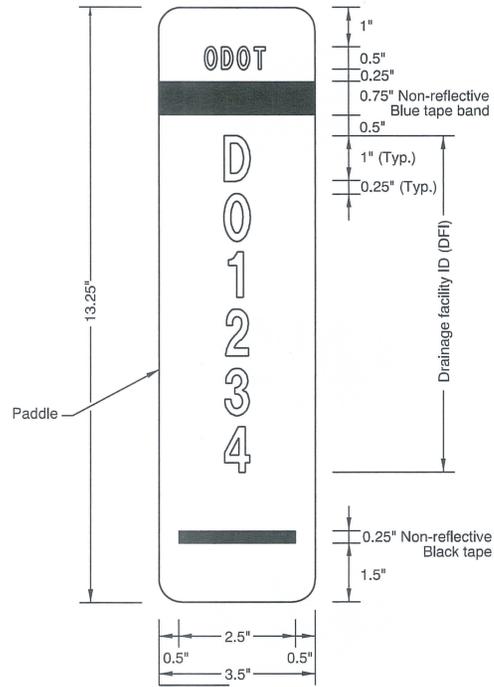
1. For Details and Dimensions Not Shown Here Refer to Standard Drawing R-4.2.1.
2. Reuse existing grate if competent (as determined by Engineer).



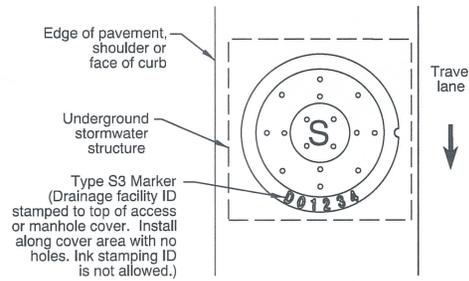
SECTION A-A



TYPE S1 & S2 MARKERS INSTALLATION DETAIL



TYPE S2 MARKER



TYPE S3 MARKER INSTALLATION DETAIL

Notes:

Stormwater Facility Field Marker Type S1:

1. See Standard Drawing TM570 for Type 2 flexible plastic post dimensions. Do not mount reflective sheeting to flexible plastic post.
2. A red Type S1 marker is used to mark the start of a stormwater facility maintenance area, A green Type S1 marker is used to mark the end of a stormwater facility maintenance area.
3. Place 4 to 6 feet from edge of pavement or face of curb.
4. See marker table for installation locations.

Stormwater Facility Field Marker Type S2:

1. Paddle:
 - Aluminum sheet, nominal thickness 0.050"
 - White non-reflective background
 - Mount paddle to one (1) Type 1U steel post using 3/16" diameter aluminum blind rivets and washers. See Standard Drawing TM570 detail labeled "Steel Posts" for mounting a traffic target. Install paddle onto Type 1U steel post using the same hole pattern.
 - Text and numbers are Type C font in non-reflectORIZED black
 - Band is non-reflective blue tape
 - Do not mount paddle to other highway signing posts
 - Install paddle parallel to travel lane
 - Prepare paddle for each "DFI" noted in the marker table

2. Steel Posts:

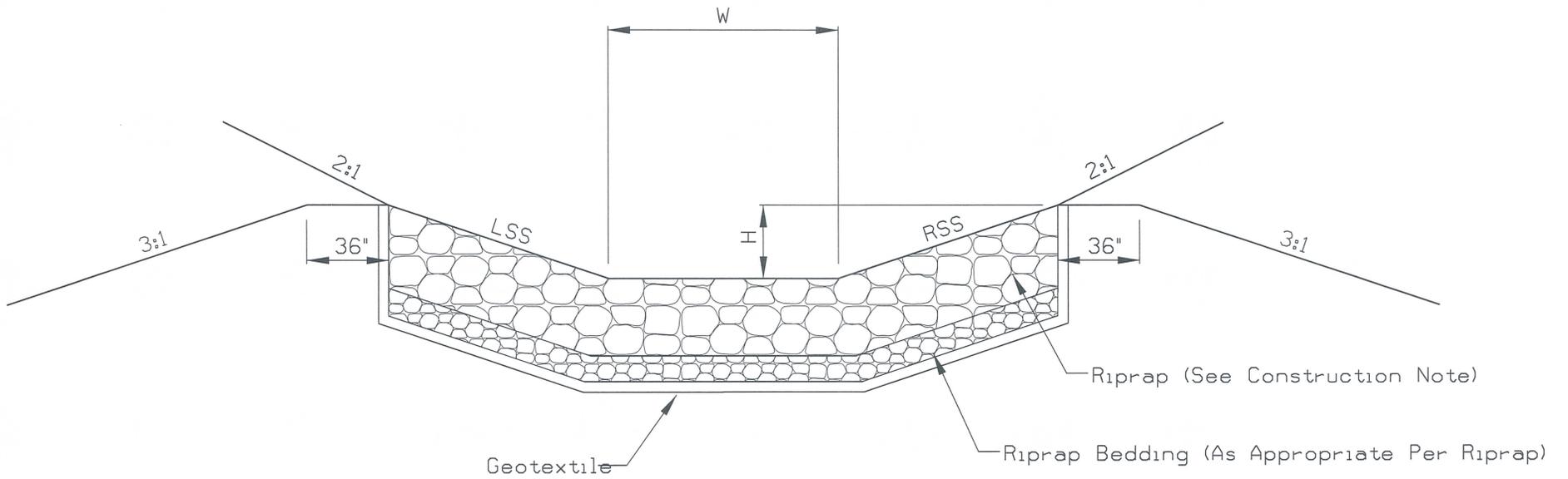
- See Standard Drawing TM571 for Type 1U steel post dimensions

Stormwater Facility Field Marker Type S3:

1. The top of access or manhole cover shall be stamped with the drainage facility ID. Ink stamping ID is not allowed.

CALC. BOOK NO.	N/A	BASELINE REPORT DATE	01-JAN-2013
NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications			
OREGON STANDARD DRAWINGS			
STORMWATER TREATMENT AND STORAGE FACILITY FIELD MARKERS			
2012			
DATE	REVISION DESCRIPTION		

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.



BERMED RIPRAP TRAPEZOIDAL DITCH

See 2010 Standard Plan R - 3.1.5 for Missing Information Such As Riprap And Bedding Depth.

PRELIMINARY

SUBJECT TO REVISION
5555d0e655

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA		COUNTY1	

NEW	EXISTING	DESCRIPTION	NEW	EXISTING	DESCRIPTION	LABELS	DESCRIPTION
		Pull Box			Power Service (120-240 V.A.C. Unless Otherwise Specified)		Conduit Run Label
		ITS Pull Box #9			Power Source	(aa)	Pull Box Designation
		ITS Pull Box #7			Traffic Signal Head With Reflective Backplate		DMS Structure Number
		Junction Box			Traffic Signal Head, With 12" Green, Yellow and Red Arrow Sections, With Reflective Backplate		1=High Mast Pole No. B1 = Circuit No.
		Internally Illuminated Sign			Signal Head Pedestrian		1 = Underpass Luminaire No. B4 = Circuit No.
		Video Detection Camera			Signal or Light Pole		1 = Type 7 Pole No. A1 = Circuit No.
		CCTV Camera			Light Pole, Type 7		Remove and Reset Pole
		Flashing Signal Flashers ("Y" Indicates Yellow Lens)			Light Pole, Type 14		Pole Designation
		Flashing Signal Flashers ("R" Indicates Red Lens)			High Mast Light Pole (No. of Lamps Indicated on Plans)		Pedestrian Push Button Phasing Label
		Traffic Cabinet Controller			Underpass Luminaire	SYMBOLS DESCRIPTION	
		ITS Cabinet Controller			Overhead Sign Light		Portable Traffic Signal (Trailer Mount)
		Vehicle Detector-Inductive Loop Unless Otherwise Indicated			Pole Power Wood		Traffic Signal Sign
		Video on MRD's			Emergency Vehicle Detection		Conduit Directional Drilled
		DMS (Dynamic Message Sign)			MRD		Transformer Pad
							Conduit

Note: Existing Identified On Plans By Alternate Color

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

SIGNAL, LIGHTING, AND
ITS SYMBOLS



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: ITS POLE MOUNTED CABINET

Note: A separate form is required for each standard detail.

Previously used: Contract Number: 3474 Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: USED ON SEVERAL PROJECTS INCLUDING
CARLIN TUNNEL CMAA 3540
INSERT RIGHT AFTER ITS CABINET
SHEETS

Requestor Information: Name: *Thomas H. Moore* Phone: ~~1279~~ 14 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

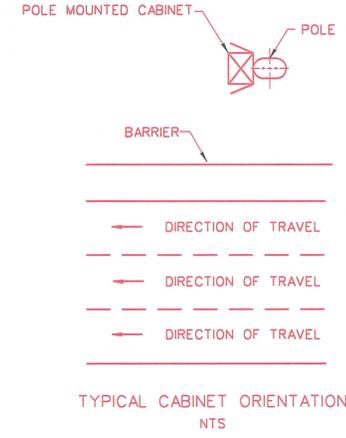
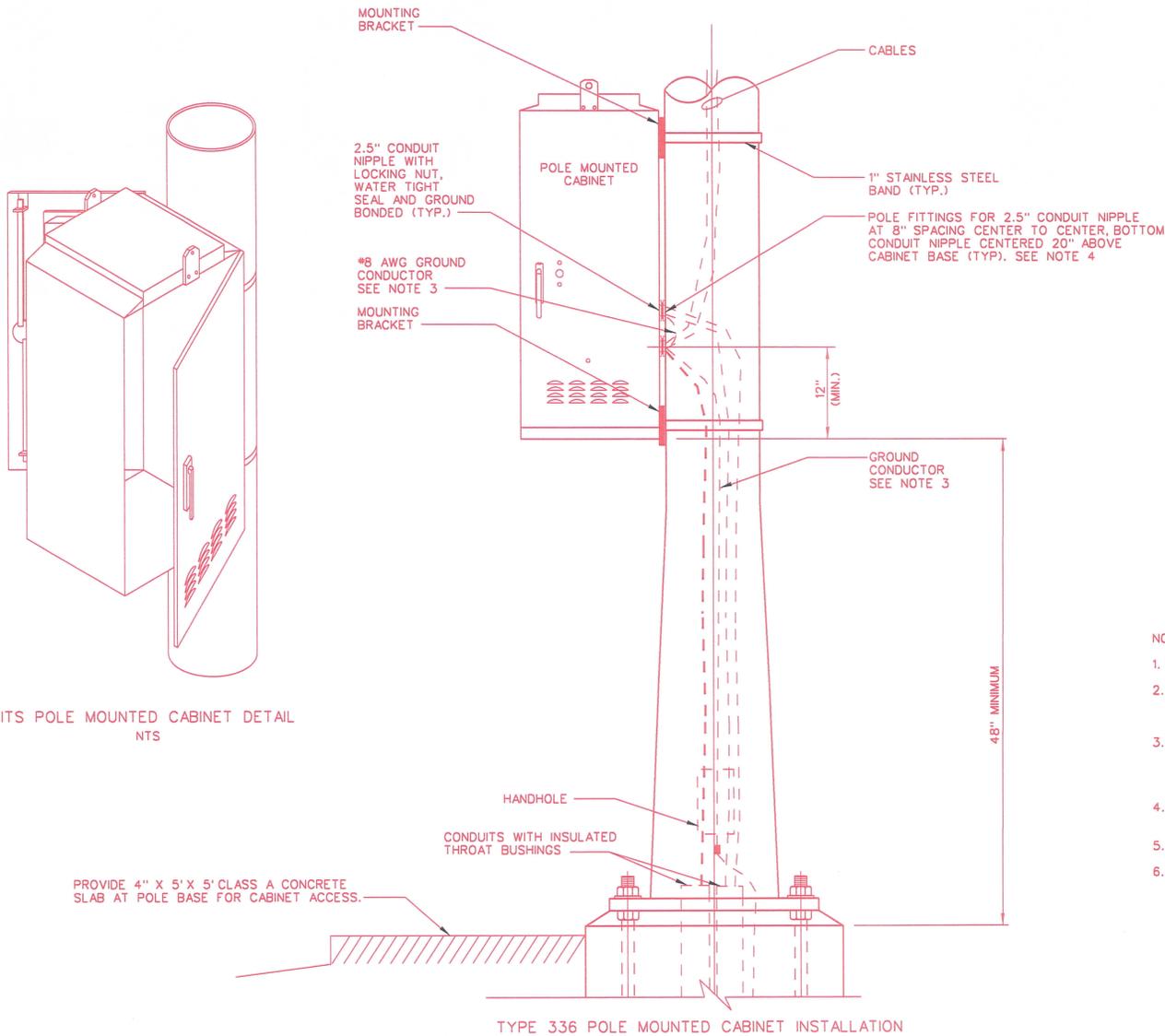
Policy Review:

CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

Notes: _____

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			CABINET



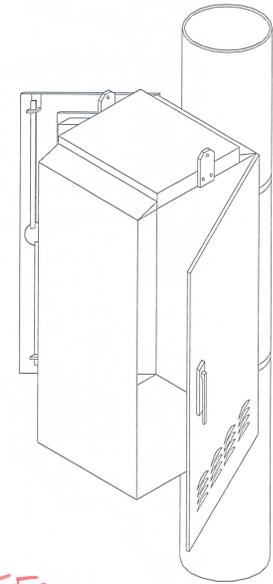
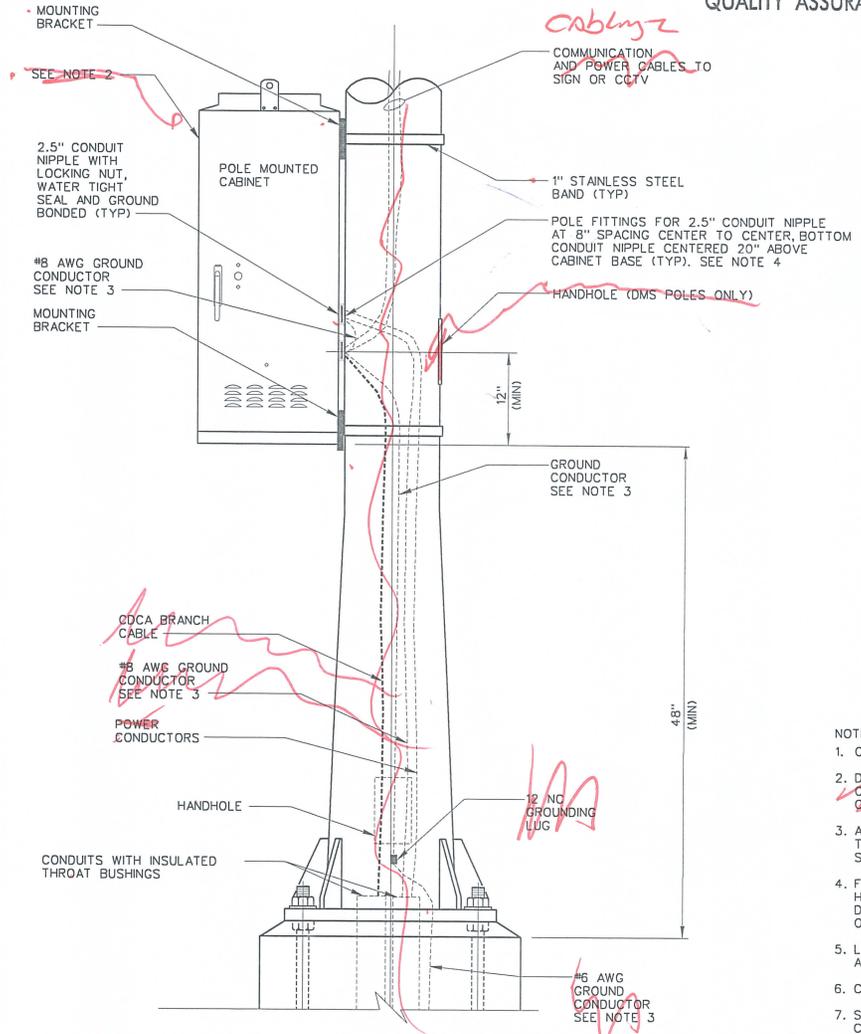
- NOTES:
1. CONDUIT HOLES IN CABINET MAY BE FIELD DRILLED OR FACTORY DRILLED.
 2. ALL GROUND WIRES ENTERING THE CABINET SHALL BE TERMINATED ON THE GROUNDING LUG. GROUNDING SHALL BE IN ACCORDANCE WITH NDOT STANDARD SPECIFICATIONS AND THE NATIONAL ELECTRIC CODE.
 3. FOR CABINETS: THREE 2.5" HOLES AND A HANDHOLE OPPOSITE THE HOLES SHALL BE FABRICATED WITH POLES BUT SHALL BE FIELD DRILLED ON ALL OTHER POLES. HANDHOLE AND COVER SHALL MATCH OTHERS ON POLE. DEBUR ALL EDGES AFTER FIELD DRILLING.
 4. LOCATION OF POLE MOUNTED CABINETS TO BE FIELD VERIFIED BY THE ENGINEER PRIOR TO INSTALLATION.
 5. CABINET TYPE MAY VARY DEPENDING ON INSTALLATION REQUIREMENTS.
 6. SEE CABINET IDENTIFICATION CODE DETAILS.

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

**ITS POLL MOUNTED
CABINET**

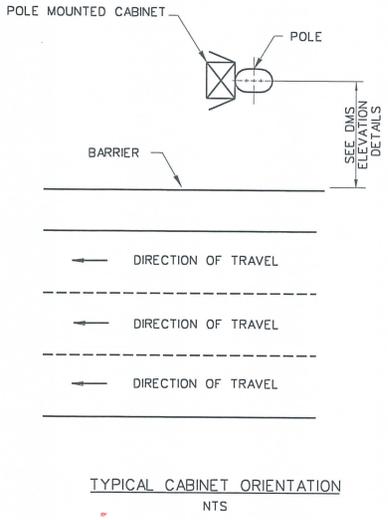
QUALITY ASSURANCE

FED. RD. REG. NO.	STATE	PROJECT NO.	COUNTY	SHEET NO.
9	NEVADA	313-10-050	CLARK	ID-14



ITS
TYPE 336 POLE MOUNTED CABINET DETAIL
NTS

- NOTES:
- CONDUIT HOLES IN CABINET MAY BE FIELD DRILLED OR FACTORY DRILLED.
 - DMS VENDOR WILL PROVIDE TYPE 336 DMS CABINET OR NDOT APPROVED CABINET, MOUNTING BRACKETS AND WIRING DETAILS. ALL OTHER CABINETS TO BE CONTRACTOR FURNISHED.
 - ALL GROUND WIRES ENTERING THE CABINET SHALL BE TERMINATED ON THE GROUNDING LUG. GROUNDING SHALL BE IN ACCORDANCE WITH NDOT STANDARD SPECIFICATIONS AND THE NATIONAL ELECTRIC CODE.
 - FOR DMS CABINETS: THREE 2.5" HOLES AND A HANDHOLE OPPOSITE THE HOLES SHALL BE FABRICATED WITH DMS POLES BUT SHALL BE FIELD DRILLED ON ALL OTHER POLES. HANDHOLE AND COVER SHALL MATCH OTHERS ON POLE. DEBUR ALL EDGES AFTER FIELD DRILLING.
 - LOCATION OF POLE MOUNTED CABINETS TO BE FIELD VERIFIED BY NDOT AND FAST STAFF PRIOR TO INSTALLATION.
 - CABINET TYPE MAY VARY DEPENDING ON INSTALLATION REQUIREMENTS.
 - SEE PLANS FOR CABINET IDENTIFICATION CODE AND SHEET ID-15 FOR CABINET IDENTIFICATION CODE DETAILS.



TYPICAL CABINET ORIENTATION
NTS

TYPE 336 POLE MOUNTED CABINET INSTALLATION

K:\LAV_PublicTrans\092202_NDOT\14 Package F\ACADD\xxx\FL_ID014.dgn

6/30/2011 sean.r.robinson

Designed By:	RWF		
Detailed By:	BLH		
Checked By:	MDC		
	NO.	DESCRIPTION	DATE
		ISSUE RECORD	

Call before you dig
NTS Call
811
1-800-227-2600

FAST
Call before you dig
Underground
1-702-432-5300
www.fastnv.com

CALL BEFORE YOU DIG
UNDERGROUND
1-702-227-2929

QUALITY ASSURANCE SUBMITTAL
FOR REVIEW ONLY
SUBJECT TO REVISION
NOT FOR CONSTRUCTION
7/01/11

Kimley-Horn and Associates, Inc.
© 2011 KIMLEY-HORN AND ASSOCIATES, INC.
2000 E. FLAMINGO RD., SUITE 210
LAS VEGAS, NV 89119
PHONE: (702) 734-5666 FAX: (702) 735-4949

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
FAST PACKAGE F
POLE MOUNTED CONTROLLER CABINET INSTALLATION
ITS DETAIL



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: CDCA

Note: A separate form is required for each standard detail.

Previously used: Contract Number: 3474 Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: USED ON ALL ITS PROJECTS

PLACE AFTER T-30.1.5

Requestor Information: Name: *Therese...* Phone: ~~1274~~ 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

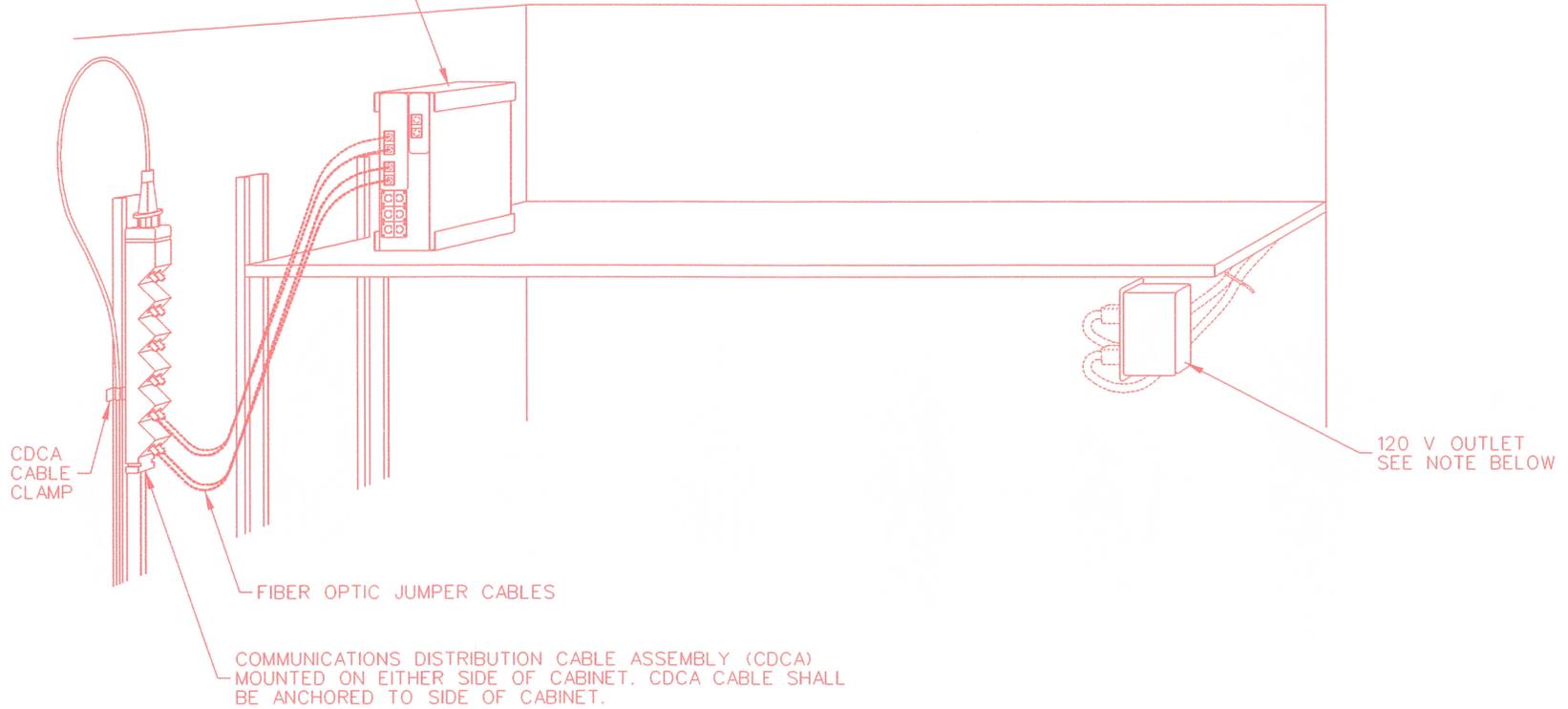
Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

Notes: _____

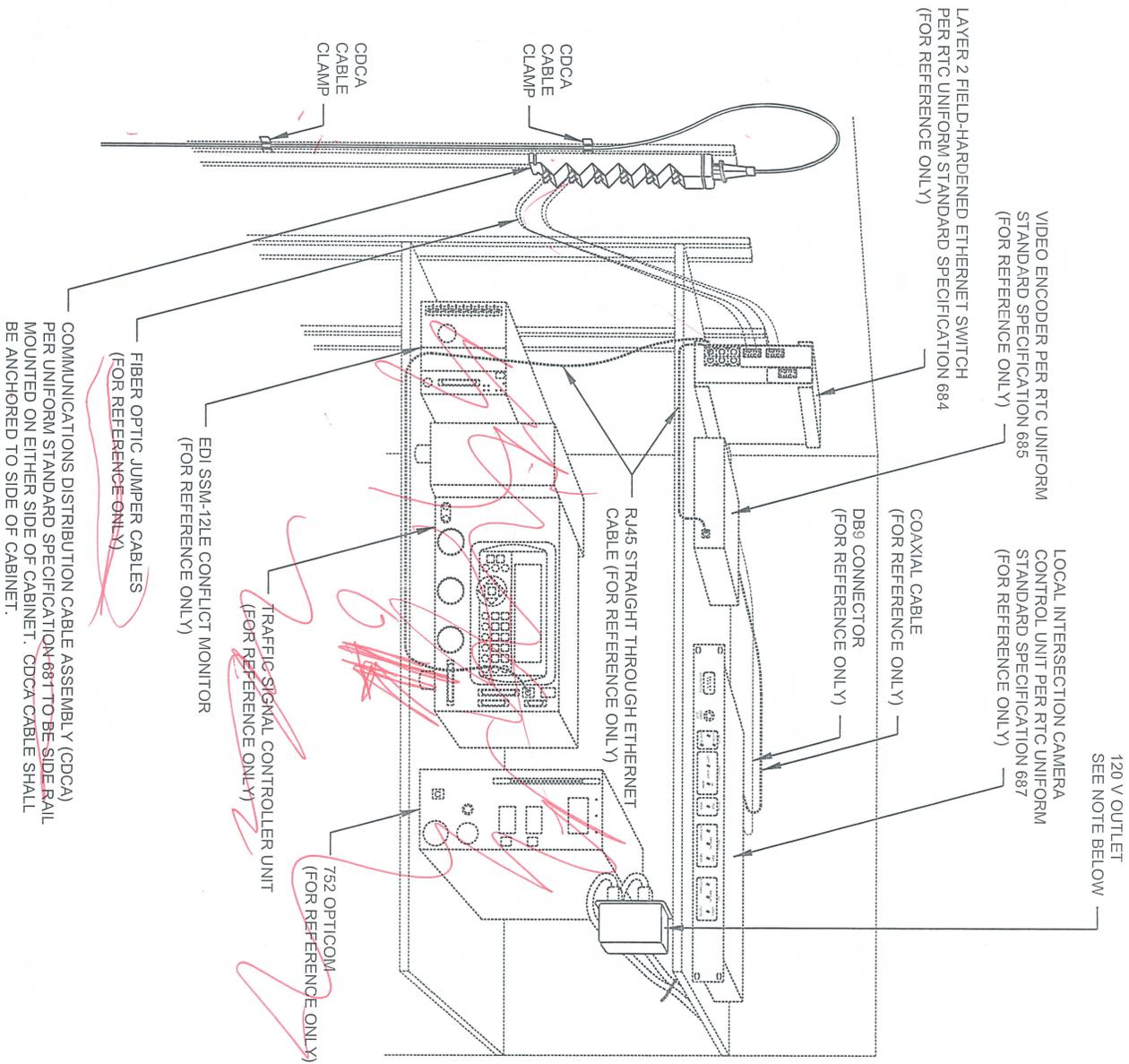
LAYER 2 FIELD-HARDENED ETHERNET SWITCH



COMMUNICATIONS DISTRIBUTION CABLE ASSEMBLY (CDCA)
MOUNTED ON EITHER SIDE OF CABINET. CDCA CABLE SHALL
BE ANCHORED TO SIDE OF CABINET.

NOTE:
AN ADDITIONAL 120V OUTLET TO BE INSTALLED ON SIDE RAIL, NEAR TOP, FOR ITS EQUIPMENT ON
EITHER SIDE OF CABINET. LOCATION TO BE APPROVED BY AGENCY ENGINEER BEFORE INSTALLATION.
MAXIMUM OF FOUR OUTLETS PER CABINET.

STATE OF NEVADA DEPARTMENT OF TRANSPORTATION		
COMMUNICATION DISTRIBUTION CABLE ASSEMBLY (CDCA) IN CABINET		
DET. *	(000)	Signed Original On File
ADOPTED ./..	REVISED ./..	CHIEF SAFETY/TRAFFIC ENGR.



NOTE:
 AN ADDITIONAL 120V OUTLET TO BE INSTALLED ON SIDE RAIL, NEAR TOP, FOR ITS EQUIPMENT ON EITHER SIDE OF CABINET. LOCATION TO BE APPROVED BY AGENCY ENGINEER BEFORE INSTALLATION. MAXIMUM OF FOUR OUTLETS PER CABINET.

Figure C System on ITS Cabinet

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS			
681	FIBER OPTIC SPLICE AND DISTRIBUTION EQUIPMENT	B	C	H	L
		CLARK COUNTY AREA			
		COMMUNICATION STANDARD DRAWINGS			
		CABLE ASSEMBLY (CDCA)			
		IN CABINET			
DATE	04-8-10	DWG. NO.	767		



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

**NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712**

Detail Name: Reflective Tape Signal Heads
Note: A separate form is required for each standard detail.

Previously used: Contract Number: 3573 Contract Sheet Numbers: state furnished
Note: If not previously used by NDOT you must provide drawings and other supporting documentation. material

Comments:
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dgn available
pw : \\PwIntSrv.dot.state.nv.us\NDOTPW\Documents\
Divisions\016 - Signals\Lighting\Signal head

Requestor Information: Name: [Signature] Phone: 1-797-47566

For Standards/Manuals Personnel Only: Approved Denied

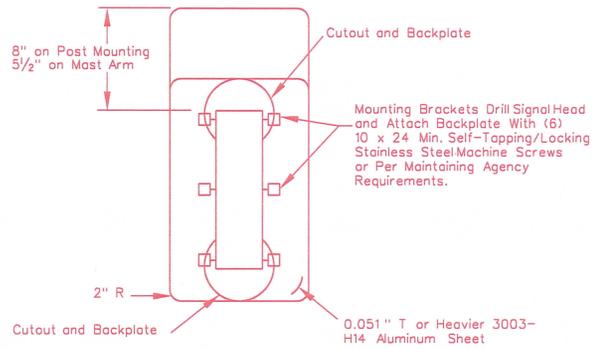
Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

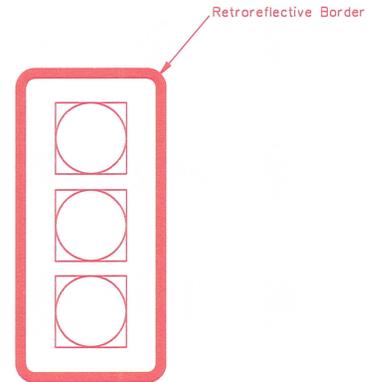
Reviewed by: Signature: _____ Date: _____

Notes:
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REAR VIEW BACKPLATE

No Background Light to Show Between Plate and Head.
All Mast Arm Backplates Shall Be Louvered.



BACKPLATE RETROREFLECTIVE BORDER

NOTES:

RETROREFLECTIVE BORDERS:
RETROREFLECTIVE BORDERS SHALL BE CONSTRUCTED FROM A 2 INCH YELLOW RETROREFLECTIVE ADHESIVE SHEETING BORDER ON THE ENTIRE OUTER PERIMETER OF THE BACKPLATE PANELS.
RETROREFLECTIVE SHEETING TYPE SHALL BE FLUORESCENT YELLOW, TYPE IV OR BETTER AND LISTED ON THE NDOT QUALIFIED PRODUCTS LIST (OPL).
THE RETROREFLECTIVE BORDER SHALL BE PLACED NO CLOSER THAN 1/2 INCH FROM ALL LOUVERS. NO SHEETING IS ALLOWED OVER ANY LOUVERED AREA.
THE DESIGN WILL CONFORM TO THE NEVADA DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (2001) AND THE NEVADA DEPARTMENT OF TRANSPORTATION STANDARD PLANS (2010).

STATE OF NEVADA DEPARTMENT OF TRANSPORTATION		
SIGNAL HEAD BACKPLATE		
DET. •	(000)	Signed Original On File
ADOPTED	REVISD	CHIEF SAFETY/TRAFFIC ENGR.



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

**NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712**

Detail Name: Signal Mounting Detail (Modification)

Note: A separate form is required for each standard detail.

Previously used: Contract Number: 3549 Contract Sheet Numbers: T14

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments:

Dgn available on Projectwise:

pw://PwIntSrv.dot.state.nv.us:NDOTPW/Documents/Divisions/016Traffic
Operations/Projects/TrafficOperationsProjects/51-0032(103)/Design
Files/Signal Mounting Detail.dgn

Requestor Information: Name: Thomas J. Munn Phone: 1279707566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

Notes:

LIST OF MATERIALS		
ITEM	QTY	DESCRIPTION
①	1	THERMINAL COMPARTMENT FOR SIDE MOUNTING
* ②	2	1 1/2" PIPE, (TYP) 11 1/2" LONG FOR PEDESTRIAN SIGNAL HEADS
③	2	90° ELBOW WITH LOCKING DEVICE
④	4	1 1/2" LOCK NIPPLE, (TYP) 1 3/4" LONG
⑤	2	SIGNAL, SEE PLANS
⑥	1	CENTER PIPE, SEE TABLE
⑦	1	TEE, DRILL AND TAP FOR SETSCREW
⑧	2	NEOPRENE WASHER OR GASKET
⑨	2	FLAT WASHER
⑩	1	1 1/2" PIPE COUPLING, AS REQUIRED
⑪	1	1 1/2" PIPE, SEE TABLE
⑫	2	90° ELBOW
* ⑬	2	1 1/2" PIPE, (TYP) 12 1/2" LONG FOR PEDESTRIAN SIGNAL HEADS
* ⑭	1	1 1/2" PIPE, (TYP) 9 1/2" LONG FOR PEDESTRIAN SIGNAL HEADS
⑮	2	1 1/2" PIPE, (TYP) 24 1/2" LONG
⑯	2	1 1/2" PIPE, (TYP) 24" LONG
⑰	1	CONDUIT LOCK NUT (FOR CONFIGURATIONS UTILIZING 2 3C HEADS)
⑱	1	1 1/2" PIPE, (TYP) 3" LONG (FOR CONFIGURATIONS UTILIZING 2 3C HEADS)
⑲	1	MALLEABLE HEX NUT (FOR CONFIGURATIONS UTILIZING 2 3C HEADS)

* Special Pipe Length For Use Only With Ped Signal Single Head Units

TABLE FOR ITEM ⑥ ONLY

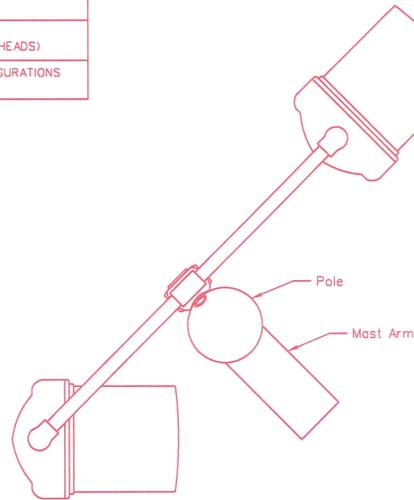
SIGNAL FACE COMBINATION	3C			4C		5C	
	3C	3 1/2"	4 1/2"	48"	61 1/2"	61 1/2"	61 1/2"
3C	34 1/2"	48"	61 1/2"				
4C	48"	48"	61 1/2"				
5C	61 1/2"	61 1/2"	61 1/2"				

THREADS ON ONE END ONLY

TABLE FOR ITEM ⑪ ONLY

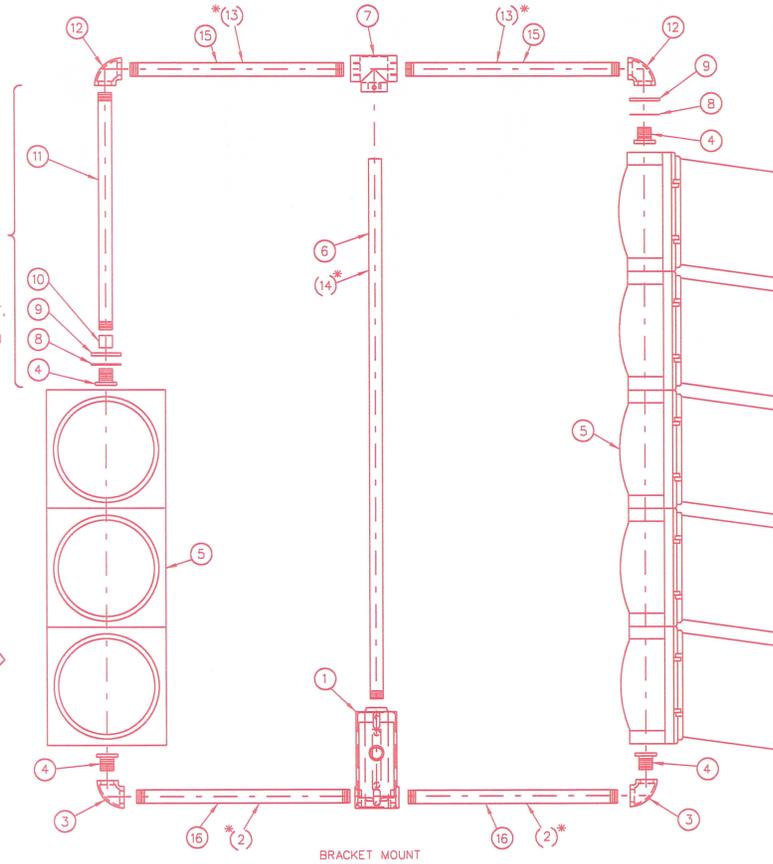
SIGNAL FACE COMBINATION	3C			4C		5C	
	3C	0	13 1/2"	27"	13 1/2"	13 1/2"	0
3C	0	13 1/2"	27"				
4C	13 1/2"	0	13 1/2"				
5C	27"	13 1/2"	0				

TABLE TO BE USED FOR FINDING PIPE LENGTH



TYPICAL MOUNTING ORIENTATION PLAN

THE ABOVE ITEMS ARE TO BE USED IN PLACE OF THE ITEMS SHOWN AT THE RIGHT, FOR CONFIGURATIONS WITH TWO 3 SECTION HEADS.



NOTE: WHEN REQUIRED THE MOUNT ASSEMBLIES SHALL INCLUDE THE NECESSARY GASKETS, GASKET WASHERS AND PHYSICAL FEATURES TO MAKE ALL CONNECTIONS WEATHER-PROOF. THE GASKET MATERIAL SHALL BE NEOPRENE OR SIMILAR SUITABLE SYNTHETIC RUBBER GASKET MATERIAL WHICH IS RATED FOR OUTDOOR USE.

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

**SIGNAL MOUNTING
DETAIL**



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: ITS CABINET IDENTIFICATION CODE

Note: A separate form is required for each standard detail.

Previously used: Contract Number: 3474 Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: USED ON SEVERAL NDOT PROJECTS

ALL FAST PROJECTS

INSERT AFTER ITS POLE MOUNTED
CABINET SHEET

Requestor Information: Name: Thomas J. [Signature] Phone: ~~725/714~~ 7565

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:

CADD Standards ASTM AASHTO Design Manual Specifications

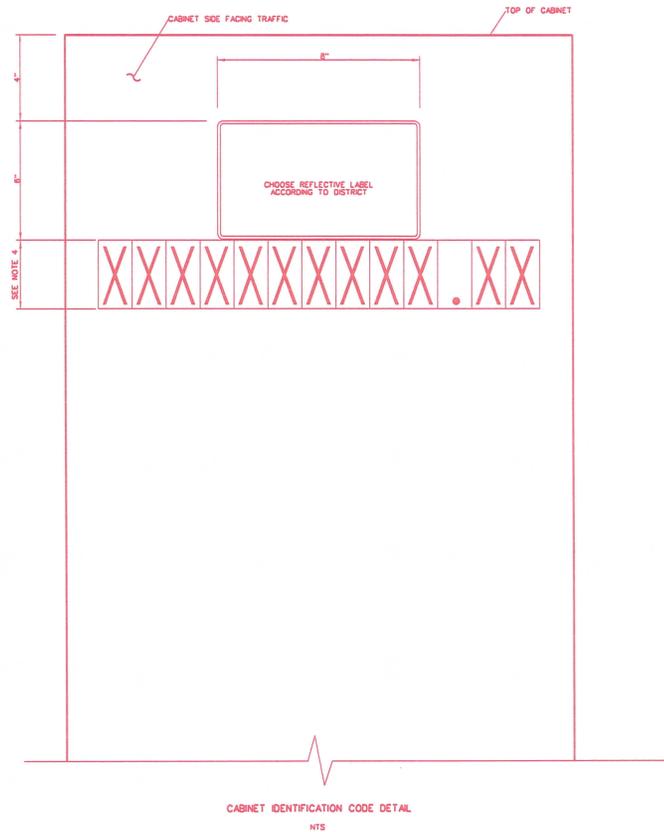
Reviewed by: Signature: _____ Date: _____

Notes: _____

PRELIMINARY

SUBJECT TO REVISION
5555dne555

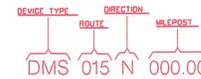
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			



NOTES:

1. ALL CABINETS SHALL HAVE A THIRTEEN-DIGIT IDENTIFICATION CODE. IDENTIFICATION PLATE AND IDENTIFICATION PLATE INSTALLATION ARE INCIDENTAL TO CABINET INSTALLATION.
2. SEE PLAN SHEETS FOR CABINET IDENTIFICATION CODE. LETTERS AND NUMBERS SHALL BE PLACED IN SUCH A MANNER THAT THE ENTIRE IDENTIFICATION CODE IS CENTERED HORIZONTALLY ON THE SIDE OF THE CABINET FACING TRAFFIC.
3. INSTALL ADHESIVE BACKED NDOT OR FAST LABEL CENTERED HORIZONTALLY ABOVE CABINET IDENTIFICATION CODE. LABEL PROVIDED TO CONTRACTOR BY NDOT OR FAST.
4. ADHESIVE BACKED BLACK LETTERS WITH WHITE REFLECTIVE BACKGROUND FHWA SERIES 'C' LETTERS CENTERED ON CABINET SIDE FACING TRAFFIC.
 - 2" LETTERS FOR DETECTORS, CCTV AND RAMP METER CABINETS
 - 1 1/2" LETTERS FOR POLE MOUNTED DMS AND TRAILBLAZER CABINETS

DISTRICT I



EXAMPLE:

POSSIBLE DEVICE TYPES

- DMS = Dynamic Message Sign
 - CTI = Closed Traffic Intervention
 - UAD = Detector Advisory (regardless of type of detection)
 - UAD = Detector Advisory (regardless of type of detection)
 - CAS = Control Cabinet (any type of cabinet)
 - RWS = Road Weather Information System
 - RPM = Ramp Meter
 - SVS = Service Stop location (Metered Service)
- Possible Routes**
- I05 = Interstate 5
 - I15 = Interstate 15
 - I215 = Interstate 215
 - I215 = Interstate 215 (US 95 in some areas)
 - US95 = US 95 (in most areas, not in area with I-515 designation)
 - SR = State Routes

Possible Directions

- N = Northbound Roadway
- S = Southbound Roadway
- E = Eastbound Roadway
- W = Westbound Roadway

Possible Milepost

- Mileposts should be calculated to the nearest Hundredth of a mile.
- Use 5 digits with decimal point.
- Example: 123.45 = milepost 123.45

Exception to the above address system

- Devices not on a Freeway, highway, state route
- 1) Use actual street address (DRWS12345678910) limited to 10 characters
- 2) Use intersection names (DWS123456789) limited to 10 characters

DISTRICT II



DISTRICT III



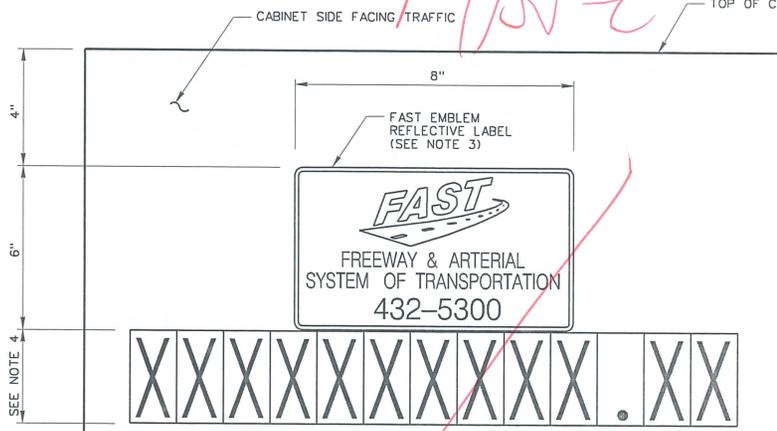
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

ITS CABINET LABELING

QUALITY ASSURANCE

FED. RD. REG. NO.	STATE	PROJECT NO.	COUNTY	SHEET NO.
9	NEVADA	313-10-050	CLARK	ID-15

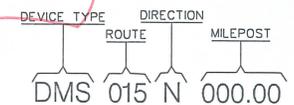
Have updated sheet



NOTES:

- ALL CABINETS SHALL HAVE A THIRTEEN-DIGIT IDENTIFICATION CODE. IDENTIFICATION PLATE AND IDENTIFICATION PLATE INSTALLATION ARE INCIDENTAL TO CABINET INSTALLATION.
- SEE PLAN SHEETS FOR CABINET IDENTIFICATION CODE. LETTERS AND NUMBERS SHALL BE PLACED IN SUCH A MANNER THAT THE ENTIRE IDENTIFICATION CODE IS CENTERED HORIZONTALLY ON THE SIDE OF THE CABINET FACING TRAFFIC.
- INSTALL ADHESIVE BACKED FAST LABEL CENTERED HORIZONTALLY ABOVE CABINET IDENTIFICATION CODE. LABEL PROVIDED TO CONTRACTOR BY FAST.
- ADHESIVE BACKED BLACK LETTERS WITH WHITE REFLECTIVE BACKGROUND FHWA SERIES C LETTERS CENTERED ON CABINET SIDE FACING TRAFFIC.
 - 2" LETTERS FOR DETECTORS, CCTV AND RAMP METER CABINETS
 - 1.5" LETTERS FOR POLE MOUNTED DMS AND TRAILBLAZER CABINETS

EXAMPLE:



POSSIBLE DEVICE TYPES

- DMS = DYNAMIC MESSAGE SIGN
- CTV = CLOSED CIRCUIT TELEVISION
- DET = DETECTOR STATION (REGARDLESS OF TYPE OF DETECTION)
- HAR = HIGHWAY ADVISORY RADIO
- CAB = CONTROLLER CABINET (ANY TYPE OF CABINET)
- TBR = TRAILBLAZER SIGN
- RMP = RAMP METER
- SVS = SERVICE DROP LOCATION (METERED SERVICE)

POSSIBLE ROUTES

- 015 = INTERSTATE 15
- 215 = INTERSTATE 215
- 515 = INTERSTATE 515 (US 95 IN SOME AREAS)
- 095 = US 95 (IN MOST AREAS, NOT IN AREA WITH I-515 DESIGNATION)
- 587 = STATE ROUTES

POSSIBLE DIRECTIONS

- N = NORTHBOUND ROADWAY
- S = SOUTHBOUND ROADWAY
- E = EASTBOUND ROADWAY
- W = WESTBOUND ROADWAY

POSSIBLE MILEPOST

MILEPOSTS SHOULD BE CALCULATED TO THE NEAREST HUNDRETH OF A MILE. USE 5 DIGITS WITH DECIMAL POINT.
EXAMPLE
123.45 = MILEPOST 123.45

EXCEPTION TO THE ABOVE ADDRESS SYSTEM

- TRAILBLAZER NOT ON A FREEWAY, HIGHWAY, STATE ROUTE
- 1) USE ACTUAL STREET ADDRESS (TBR123FIRSTST) LIMITED TO 10 CHARACTERS
- 2) USE INTERSECTION NAMES (TBRTR0P@LVB) LIMITED TO 10 CHARACTERS

CABINET IDENTIFICATION CODE DETAIL
NTS

K:\LAV_PublicTrans\092202\NDOT\014_Package F\CADD\xxxxf\LD015.dgn
6/30/2011
sean.robinson

Designed By:	RWF		
Detailed By:	BLH		
Checked By:	MDC		
	NO.	DESCRIPTION	DATE
		ISSUE RECORD	

Call before you Dig
811
1-800-227-2600

FAST
Call before you Dig
Underground
1-702-432-5300

Call before you Dig
Overhead
1-702-227-2929

QUALITY ASSURANCE SUBMITTAL
FOR REVIEW ONLY
SUBJECT TO REVISION
NOT FOR CONSTRUCTION
7/01/11

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2080 E. FLAMINGO RD, SUITE 210
LAS VEGAS, NV 89119
PHONE: (702) 734-5666 FAX: (702) 735-4549

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
FAST PACKAGE F
CABINET IDENTIFICATION CODE
ITS DETAIL

ITS cabinet labels



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: TRANSFORMER CABINET AND FOUNDATION DETAIL

Note: A separate form is required for each standard detail.

Previously used: Contract Number: 3474 Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: GIVE BETTER LAYOUT BETWEEN STEP UP
STEP DOWN TRANSFORMERS TO INCLUDE
WIRING DIAGRAM
ADD SHEETS AFTER T-30.1.6

Requestor Information: Name: *[Signature]* Phone: ~~7566~~ 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:

CADD Standards ASTM AASHTO Design Manual Specifications

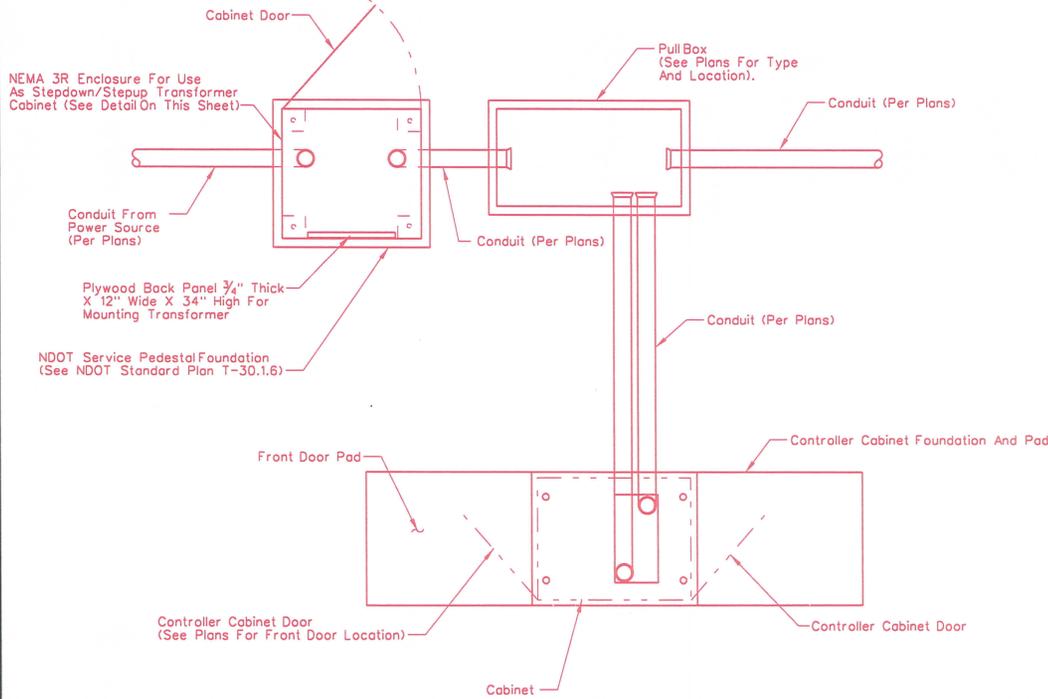
Reviewed by: Signature: _____ Date: _____

Notes: _____

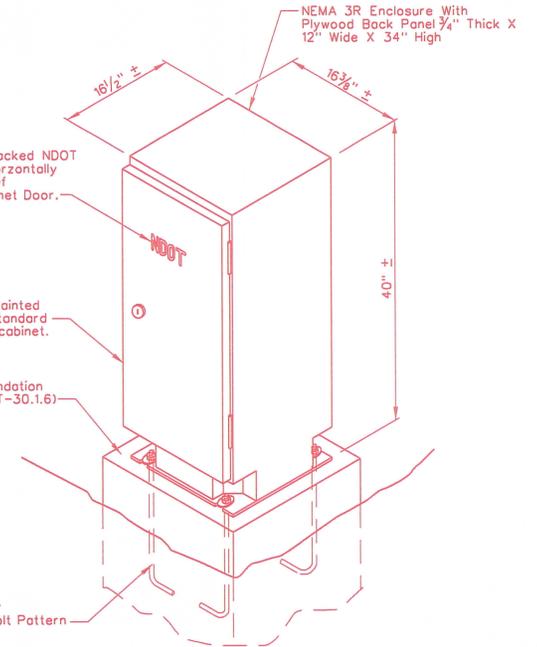
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

PRELIMINARY

SUBJECT TO REVISION
 \$\$\$\$\$\$



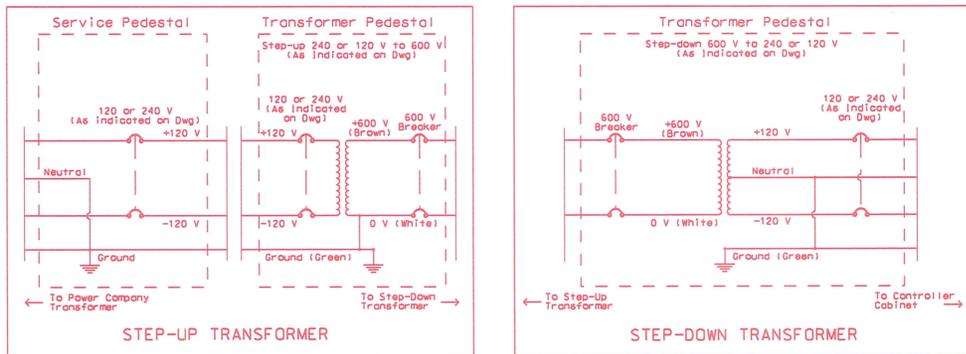
TYPICAL POWER CONDUIT CONFIGURATION DETAIL FOR TRANSFORMER CABINET INSTALLATION
 NTS



TYPICAL TRANSFORMER CABINET DETAIL ISOMETRIC VIEW
 NTS

NOTES:

1. SEE PLANS FOR ADDITIONAL CONDUITS NOT RELATED TO TRANSFORMER SYSTEM.



TRANSFORMER WIRING DETAILS

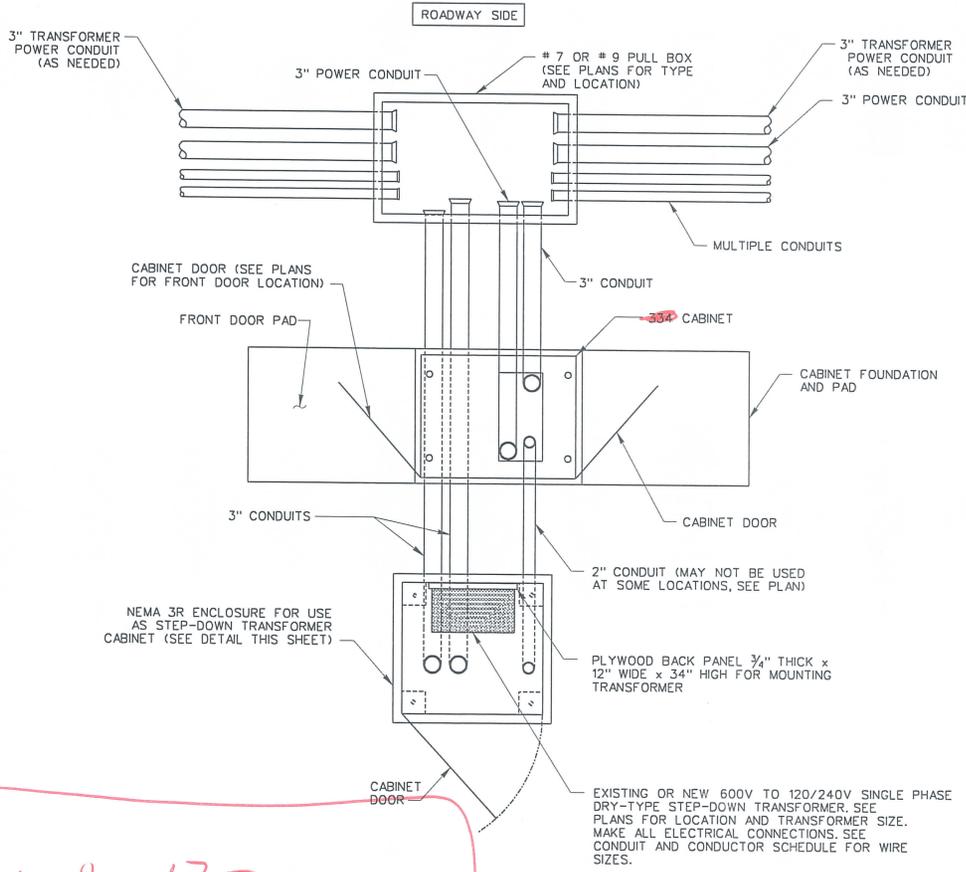
STATE OF NEVADA
 DEPARTMENT OF TRANSPORTATION

TYPICAL TRANSFORMER CABINET AND FOUNDATION

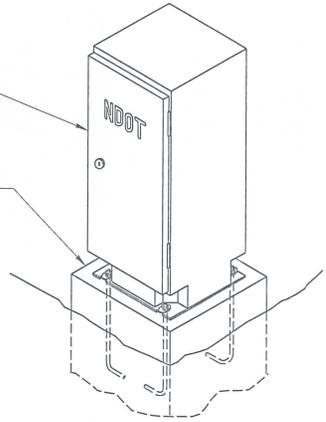
ADD

QUALITY ASSURANCE

FED. RD. REG. NO.	STATE	PROJECT NO.	COUNTY	SHEET NO.
9	NEVADA	313-10-050	CLARK	ID-16



NEMA 3R ENCLOSURE FOR USE AS STEP-UP OR STEP-DOWN TRANSFORMER CABINET (HOUSING TYPE AND SIZE MAY VARY BY VENDOR AND SIZE OF TRANSFORMER) NDOT SERVICE PEDESTAL AND FOUNDATION MAY BE USED IF TRANSFORMER FITS (*SEE NDOT STD PLAN T-30.1.6)



TYPICAL TRANSFORMER CABINET DETAIL (FOR REFERENCE ONLY) ISOMETRIC VIEW NTS

600V to 120
Wiring Diagram

For larger transformers use self contained transformers housing and foundation per manufacturer

NOTE: BOND AND GROUND ALL EQUIPMENT AND CONDUCTORS TO CABINET/FOUNDATION GROUNDING SYSTEM.

TYPICAL CONDUIT CONFIGURATION DETAIL FOR TRANSFORMER CABINET INSTALLATION NTS

Designed By:	RWF		
Detailed By:	BLH		
Checked By:	MDC		
	NO.	DESCRIPTION	DATE
		ISSUE RECORD	

Call before you dig
FAST
Call before you dig
Underground
1-800-227-2600
1-702-432-5300
1-702-227-2929

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7/01/11

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2080 E. FLAMINGO RD., SUITE 210
LAS VEGAS, NV 89119
PHONE: (702) 734-5666 FAX: (702) 735-4949

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
FAST PACKAGE
TRANSFORMER CABINET AND FOUNDATION
ITS DETAIL



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: CCTV

Note: A separate form is required for each standard detail.

Previously used: Contract Number: 3573 Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: CIMARRON PROJECT

ADD AFTER T-30.1.16

Requestor Information: Name: [Signature] Phone: ~~7566~~ 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

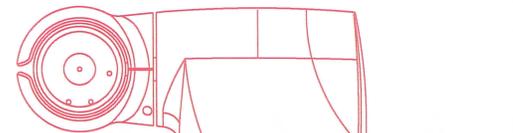
Notes: _____

PRELIMINARY

SUBJECT TO REVISION
SSSSSSSSSS

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

CCTV CAMERA



1/2" STAINLESS STEEL BOLTS WITH SINGLE STAINLESS STEEL WASHER TOP AND BOTTOM WITH DOUBLE STAINLESS STEEL NUTS

NDOT POLE DATA

POLE CAP / CAMERA BASE

1/2" S.S. ALL THREAD w/SINGLE S.S. FLAT WASHER AND DOUBLE S.S. NUTS (EACH SIDE) TO EXTEND COMPLETELY THROUGH POLE AND CAP (2-ALL-THREAD BOLTS REQ'D PER POLE WITH EACH OFFSET TO EXTEND THROUGH POLE).

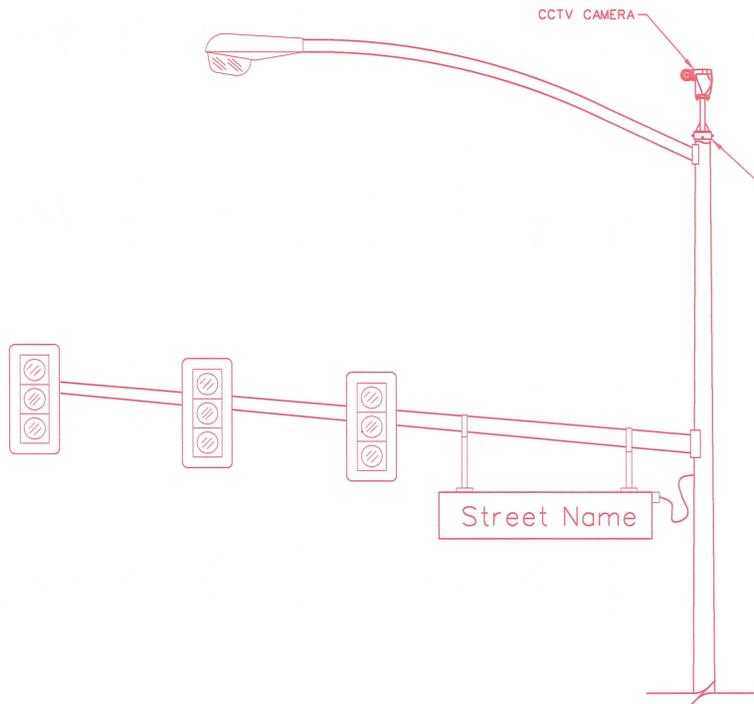
TRAFFIC SIGNAL POLE

CABLE AND CONNECTOR: PART OF CAMERA ACCESSORY

WEATHER PROOF MS STYLE CONNECTOR

CONNECTS TO CAMERA ACCESSORY (FEMALE)

CABLE



SHEET 1 OF 2

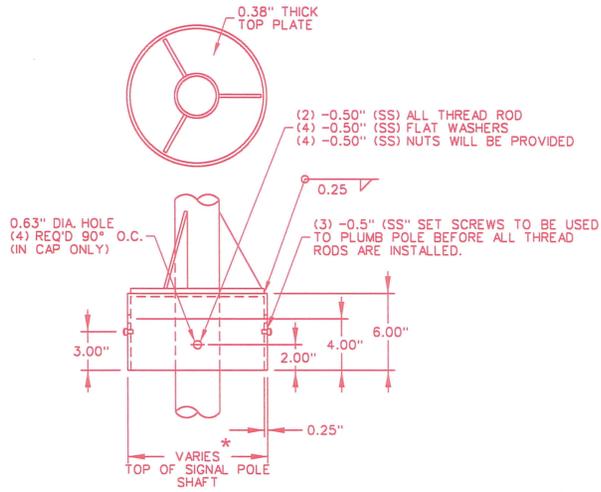
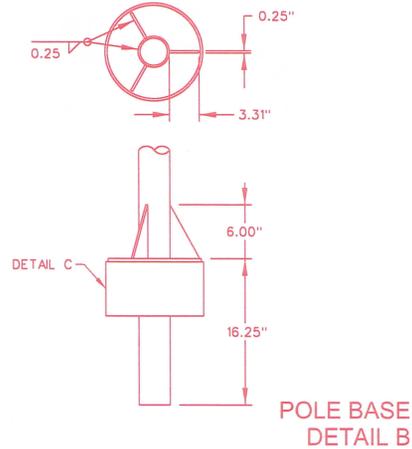
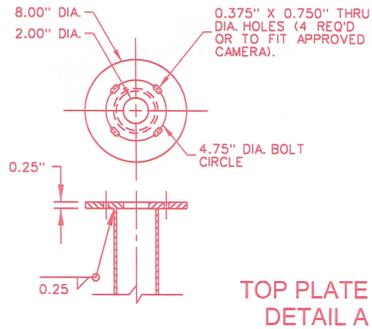
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

CLOSED CIRCUIT
TELEVISION (CCTV)
CAMERA

PRELIMINARY

SUBJECT TO REVISION
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STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

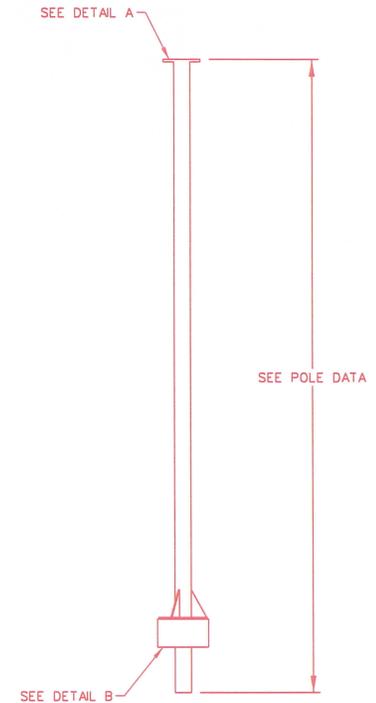


* CONTRACTOR TO FIELD MEASURE TOP OF EXISTING OR PROPOSED TRAFFIC SIGNAL POLE SHAFT BEFORE FABRICATION OF CAP.

POLE DATA			
POLE TUBE			
	BASE DIA. (IN)	LENGTH (FT)	GAUGE OR THICKNESS (IN)
LOW RISE	3.50	0.65	0.216
HIGH RISE	3.50	11.35	0.216

MATERIAL DATA		
COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)
POLE TUBE	S109	36
PLATES	A36	36
GALVANIZING -HARDWARE	A153	
GALVANIZING-STRUCTURE	A123	

*REMOVE ALL BURRS AND SHARP EDGES
0.015 MAX



CAMERA EXTENSION POLE
(REQUIRED FOR POLE CAP MOUNTING)

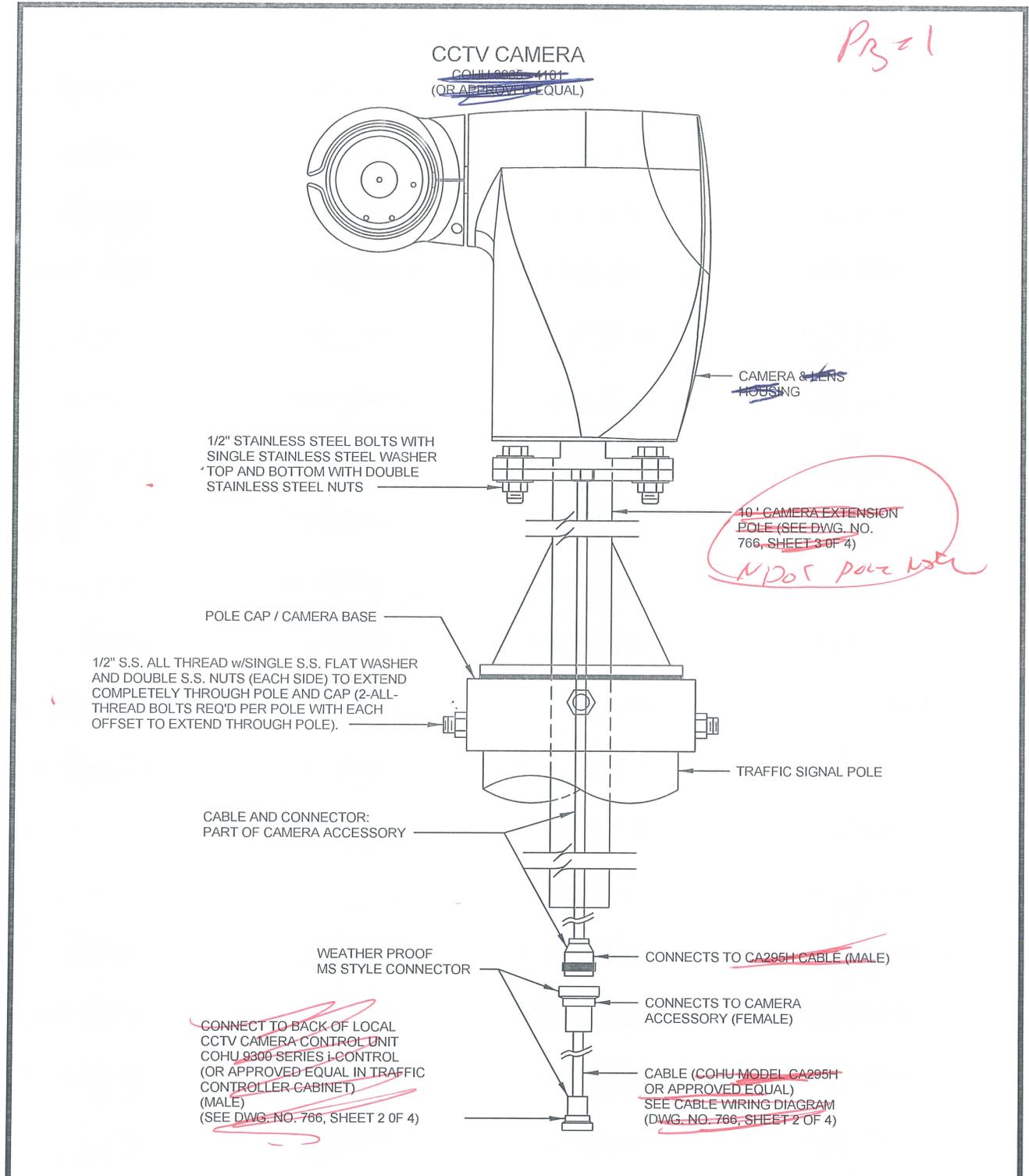
SHEET 2 OF 2

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

CLOSED CIRCUIT
TELEVISION (CCTV)
CAMERA

ADD ACTION T-30, 1, 16

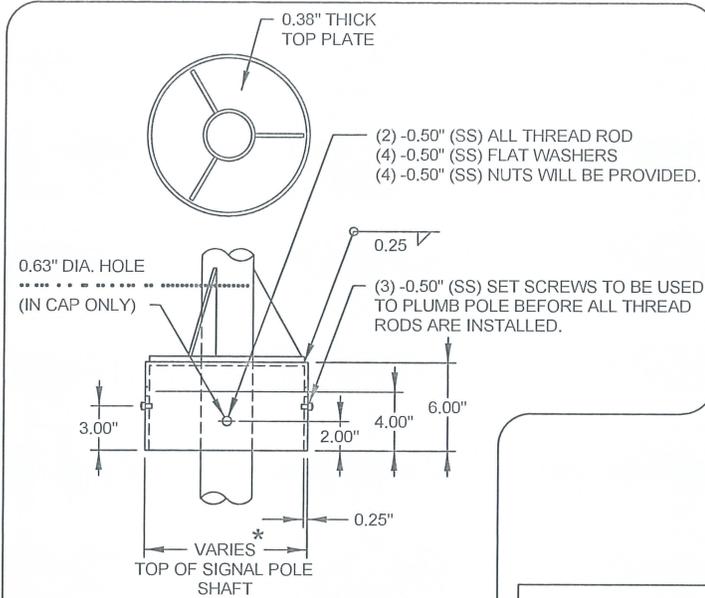
Pr 21



		AGENCY APPROVED	B	C	H	L	M	N
SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA						
685	VIDEO ENCODER	CLOSED CIRCUIT TELEVISION (CCTV) CAMERA						
686	VIDEO ENCODER							
687	CCTV FIELD EQUIPMENT							
		DATE 04-08-10	DWG. NO.	766	SHEET	1 OF 4		

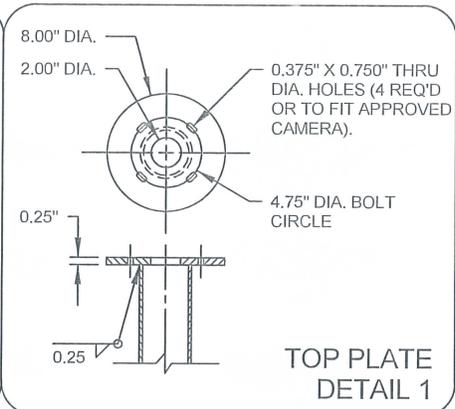
Page 2

CAMERA EXTENSION POLE
(REQUIRED FOR POLE CAP MOUNTING)

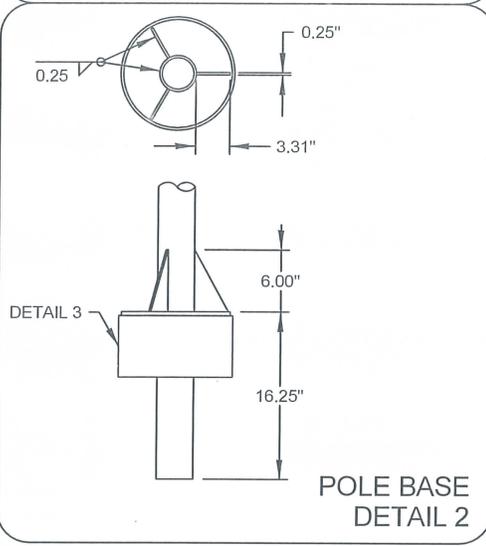


* CONTRACTOR TO FIELD MEASURE TOP OF EXISTING OR PROPOSED TRAFFIC SIGNAL POLE SHAFT BEFORE FABRICATION OF CAP.

POLE EXTENSION CAP
DETAIL 3



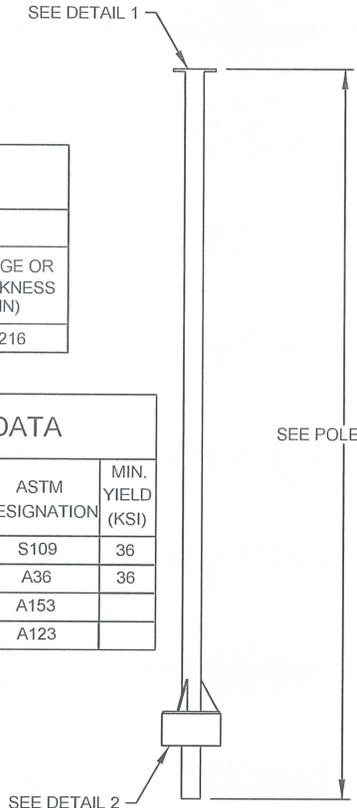
TOP PLATE
DETAIL 1



POLE BASE
DETAIL 2

POLE DATA		
POLE TUBE		
BASE DIA. (IN)	LENGTH (FT)	GAUGE OR THICKNESS (IN)
3.50	11.35	0.216

MATERIAL DATA		
COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)
POLE TUBE	S109	36
PLATES	A36	36
GALVANIZING-HARDWARE	A153	
GALVANIZING-STRUCTURE	A123	



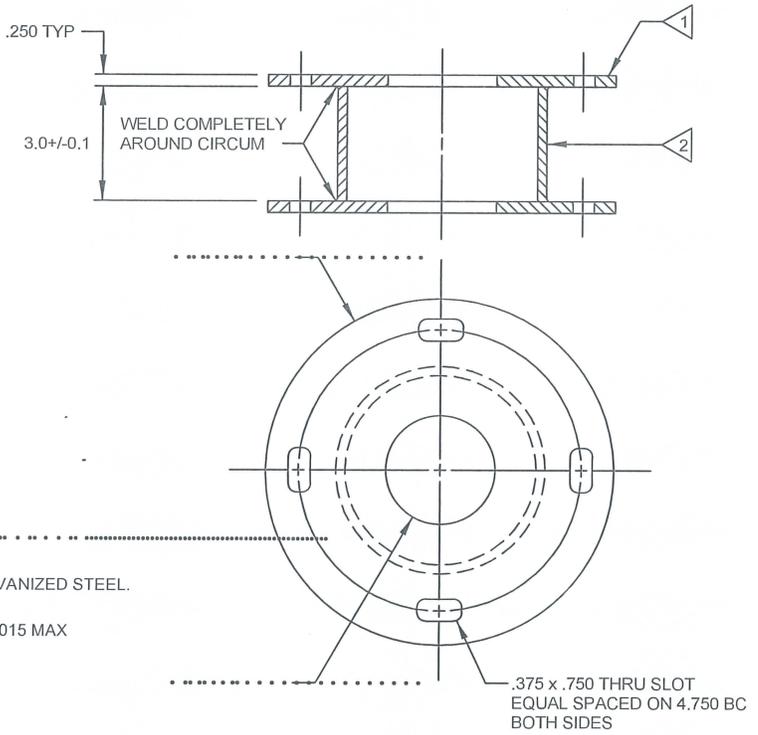
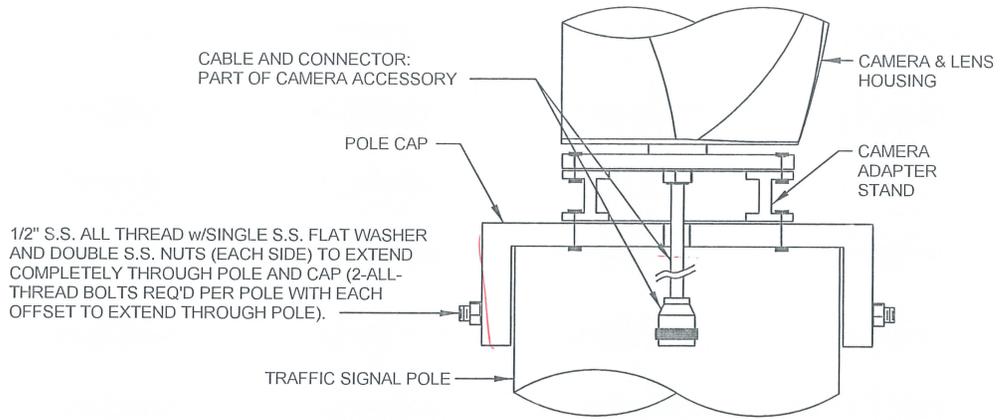
AGENCY APPROVED	B	C	H	L	M	N
UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA						
CLOSED CIRCUIT TELEVISION CAMERA EXTENSION POLE						
DATE 04-08-10	DWG. NO. 766	SHEET		4 OF 4		

SPECIFICATION REFERENCE	
685	VIDEO ENCODER
686	VIDEO ENCODER
687	CCTV FIELD EQUIPMENT

Low Rizz

Page 3

CAMERA ADAPTER STAND
(REQUIRED FOR POLE CAP MOUNTING)



- ▽ MAT'L (FLANGE): 1018 STEEL OR EQUIV.
- ▽
- 3. ALL POLE AND CAP MATERIALS TO BE GALVANIZED STEEL.
- 4. REMOVE ALL BURRS AND SHARP EDGES 0.015 MAX

NOTE:
CAMERA STAND TO BE USED ONLY TO AVOID CONFLICT WITH OVERHEAD POWER LINES. AGENCY APPROVAL REQUIRED.

		AGENCY APPROVED	B	C	H	L	M	N
SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA						
685	VIDEO ENCODER	CLOSED CIRCUIT TELEVISION CAMERA ADAPTOR STAND						
686	VIDEO ENCODER							
687	CCTV FIELD EQUIPMENT							
		DATE 04-08-10	DWG. NO.	766	SHEET	3 OF 4		



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: NO. 7 MODIFIED TYPICAL INSTALLATION
Note: A separate form is required for each standard detail.

Previously used: Contract Number: 3474 Contract Sheet Numbers: _____
Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: SHOWS CONDUIT SWEEPS AND INSTALL
DETAILS
INCLUDED SHEETS FOR COMBINED ONE
SHEET TO BE PLACED IN
FRONT OF NO. 9 MODIFIED DETAILS.

Requestor Information: Name: *Thomas Mine* Phone: ~~127974~~ 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

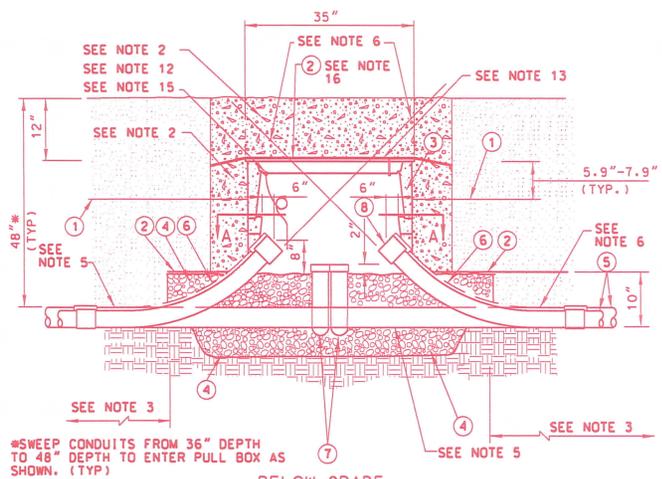
Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

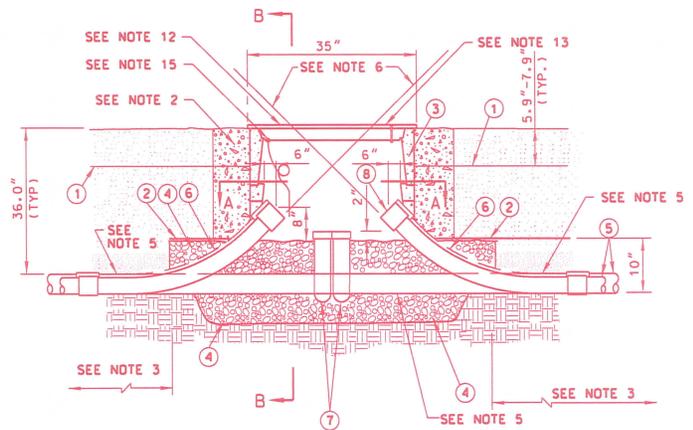
Notes: _____

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			



**BELOW GRADE
INSTALLATION DETAIL**
NTS

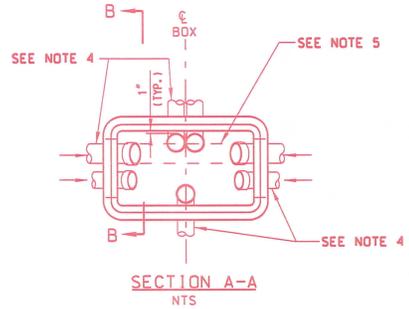
CONTRACTOR SHALL NOT BACKFILL OVER TOP OF PULL BOX FOR THIS STAGE OF CONSTRUCTION. CONTRACTOR SHALL PLACE 3/4" PLYWOOD OVER OPENING FOR PULL BOX.



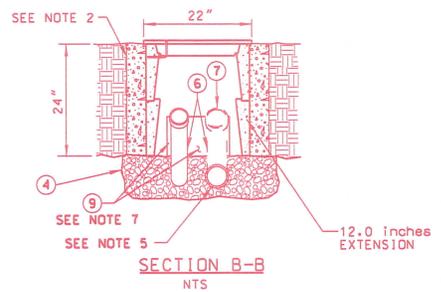
INSTALLATION DETAIL
NTS

NOTE:
PULL BOX LAYOUT AND CONFIGURATION IS PROVIDED AS REFERENCE DESIGN. SUBSTITUTE PULL BOX CONFIGURATIONS MEETING PROJECT SPECIFICATIONS CONFIGURATION MAY BE USED IF APPROVED BY NDOT.

ITEM	DESCRIPTION
①	WARNING TAPE
②	30 lbs. FELT PAPER
③	NO. 7 PULL BOX WITH EXTENSION WITH EXCEPTIONS AS DRAWN
④	BEDDING MATERIAL PER NDOT STANDARD PLAN T-30.1.18
⑤	SCH. 40 PVC OR HDPE CONDUIT (S) (SEE PLANS FOR SIZE AND QUANTITY)
⑥	45 DEGREE PVC ELBOW, OR HDPE BEND 36in. RADIUS
⑦	90 DEGREE PVC ELBOW, OR HDPE BEND 15in. RADIUS
⑧	CONDUIT BELL END (TYPICAL)
⑨	KNOCK OUT 8 inches x 12.0 inches



SECTION A-A
NTS



SECTION B-B
NTS

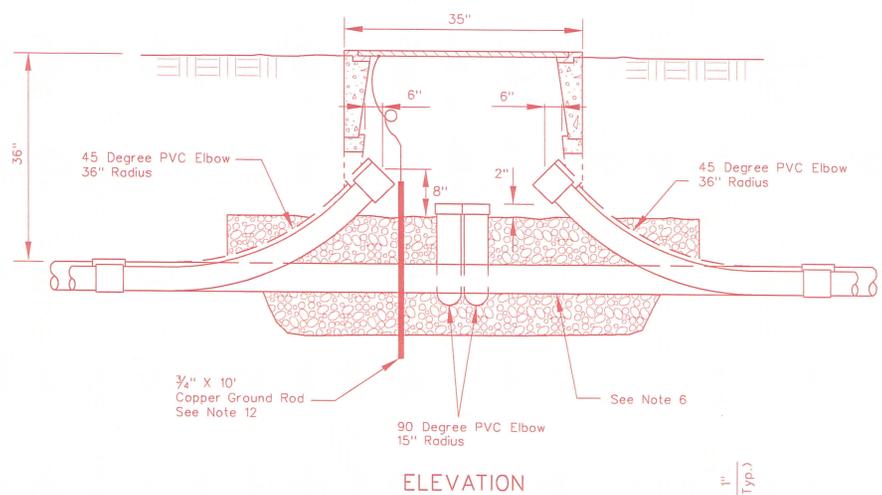
NOTES:

- NUMBERS IN CIRCLES REFER TO ITEMS IN TABLE.
- BACK FILL ACCORDING TO NDOT STANDARD PLANS AND SPECIFICATIONS.
- TRUNK LINE CONDUIT FROM THE TYPICAL TRENCH SECTION SHALL NOT DEFLECT BY MORE THAN ONE FOOT PER 10 FEET FROM THE ALIGNMENT PRECEDING OR FOLLOWING THE PULL BOX.
- SEE PLAN SHEETS FOR NUMBER AND SIZE OF CONDUIT(S).
- NEW TRUNK LINE FIBER OPTIC CONDUIT(S) SHALL PASS UNDER NO. 7 PULL BOXES. AT CONDUIT TRANSITION LOCATIONS (BRIDGE STRUCTURES, METAL CONDUIT TO HDPE OR PVC, ETC.) ALL CONDUITS SHALL ENTER PULL BOX. AT LOCATIONS WHERE POWER CONDUCTORS, DETECTOR CABLES, LOOP LEAD-IN CABLES, DETECTOR CABLE, RAMP METER SIGNAL CABLES OR BRANCH FIBER OPTIC CABLES ENTER OR PASS THROUGH, ALL OTHER CONDUITS SHALL ENTER THE PULL BOX.
- BOTTOM OF CONDUIT CENTERLINE SHALL BE ALIGNED TO EXIT TOP OF PULL BOX TO FACILITATE CABLE PULLING. PER SECTION 623.01.03 OF THE STANDARD SPECIFICATIONS.
- USE FELT PAPER TO BLOCK OPENING BETWEEN CONDUITS.
- INSTALL CONDUIT PLUG ON EACH EMPTY CONDUIT ENTERING PULL BOX.
- SEAL ENDS OF ALL CONDUITS WITH CABLES OR CONDUCTORS WITH NDOT APPROVED MATERIAL.
- A PULL BOX EXTENSION CAN BE ELIMINATED IF THE PULL BOX IS SUPPLIED WITH A DEPTH OF 24in. OR GREATER.
- PULL BOX HEIGHT ABOVE FINISHED GRADE SHALL PERMIT 4in. OF SURFACE LANDSCAPING, IF APPLICABLE, TO MATCH EXISTING CONDITIONS.
- THIS PULL BOX SHALL BE DESIGNED FOR TRAFFIC AREAS. STEEL COVERS SHALL BE USED. COVER AND BOX SHALL SUPPORT AASHTO H20-44 TRUCK LOADING.
- "NDOT" SHALL BE THE TITLE ENGRAVED IN THE LID UNLESS NOTED OTHERWISE IN THE CONTRACT DOCUMENTS. BOND AND GROUND LID PER SECTION 623.02.17 OF THE STANDARD SPECIFICATIONS.
- GROUND CONDUCTOR(S) SHALL BE BONDED AND GROUNDED PER STANDARD SPECIFICATIONS (AS REQUIRED).
- PULL BOX LID BONDING/GROUND CONDUCTOR SHALL BE 4 ft. OF #4 GREEN STRANDED GROUND WIRE, CAD WELDED TO THE LID PER NDOT REQUIREMENTS. GROUND WIRE SHALL BE COILED FOR FUTURE BONDING AND GROUNDING. IF PULL BOX INSTALLATION IS REPLACING AN EXISTING PULL BOX, THEN THE CONDUCTOR SHALL BE BONDED/GROUNDED TO THE EXISTING GROUNDING SYSTEM.
- COVER TOP OF PULL BOX WITH 30 lb. FELT PAPER TO HELP PROTECT METAL LID.
- CONTRACTOR TO GPS LOCATE AND BURY ALL PULL BOXES PER NDOT GUIDE "SPECIAL INSTRUCTIONS FOR SURVEY, MAPPING OR GIS CONSULTANTS," CURRENT EDITION.

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

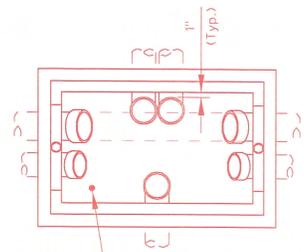
**NO. 7 PULL BOX
MODIFIED TYPICAL
INSTALLATION**

M-14



ELEVATION

LEGEND:



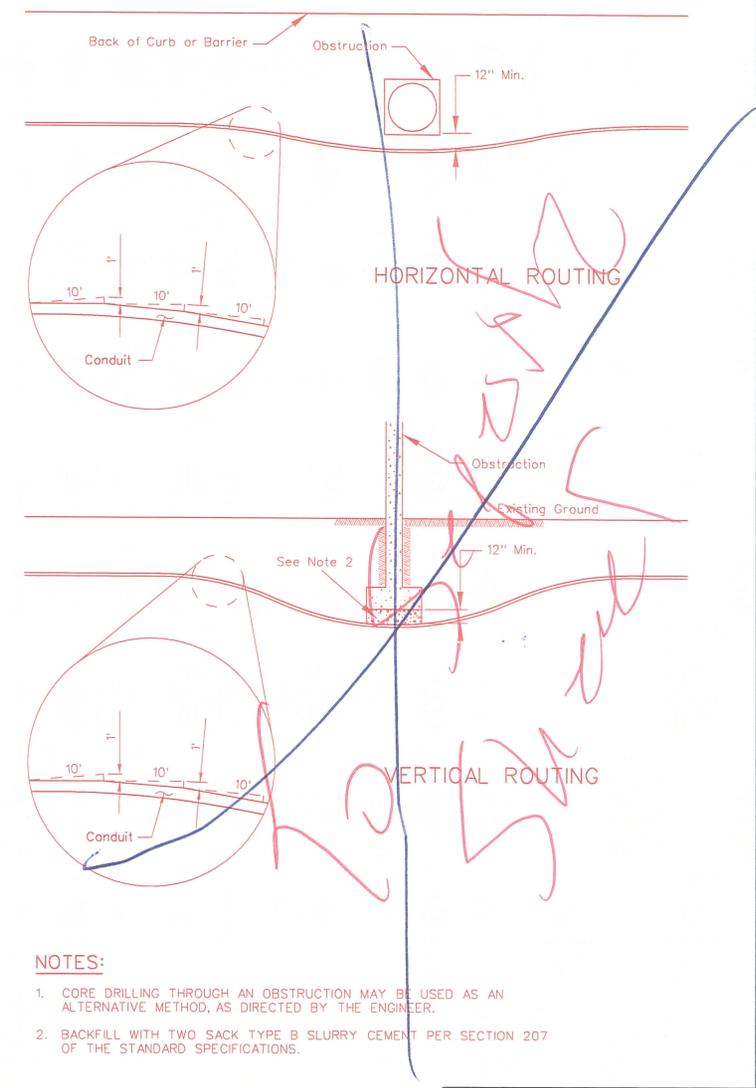
PLAN
(COVER REMOVED)

NOTES:

1. SEE PLAN SHEETS FOR NUMBER AND SIZE OF CONDUIT.
2. IF MORE THAN 3 CONDUITS ARE REQUIRED, KNOCKOUT SHALL BE WIDENED $\frac{3}{8}$ " MORE THAN THE ADDITIONAL CONDUIT WIDTH.
3. BOTTOM OF CONDUIT CENTERLINE SHALL BE ALIGNED TO EXIT TOP OF PULL BOX TO FACILITATE CABLE PULLING, PER SECTION 623, (PULL BOXES AND JUNCTION/SPLICE BOXES), OF THE STANDARD SPECIFICATIONS.
4. "NDDOT FIBER" SHALL BE THE TITLE ENGRAVED IN THE PULL BOX LID.
5. WHEN USED, MULTIDUCT CONDUIT SHALL PASS UNDER PULL BOX EXCEPT AT LOCATIONS WHERE VID CABLES, LOOP LEAD-IN CABLES, RAMP METER SIGNAL CABLES OR BRANCH FIBER OPTIC CABLES ENTER THE MULTIDUCT CONDUIT.
6. USE FELT PAPER TO BLOCK OPENING BETWEEN CONDUITS.
7. PULL BOX HEIGHT ABOVE FINISHED GRADE SHALL PERMIT 4" OF SURFACE LANDSCAPING, IF APPLICABLE, TO MATCH EXISTING CONDITIONS.
8. A PULL BOX EXTENSION CAN BE ELIMINATED IF THE PULL BOX IS SUPPLIED WITH A DEPTH OF 24".
9. INSTALL CONDUIT PLUG ON EACH UNUSED CONDUIT OR INNERDUCT.
10. ALL METAL PULL BOX LIDS SHALL BE GROUNDED. INSTALL A STRANDED #4 (GREEN, 7-STRAND) THW WIRE, 4 FEET IN LENGTH, FROM THE LID TO THE BONDING GROUND. FASTEN THE #4 CONDUCTOR TO THE LID BY CAD WELDING. ALL CONDUITS SHALL HAVE A MINIMUM OF 6" CLEARANCE FROM THE TOP OF THE CONDUIT TO THE LID.
11. SEAL ALL CONDUIT ENDS WITH A DUCT SEALING COMPOUND.
12. SEE STANDARD PLAN SHEET T-30.1.18 FOR DETAILS NOT SHOWN.

$\frac{3}{4}$ " X 10'
Copper Ground Rod
See Note 12

PULL BOXES



HORIZONTAL ROUTING

VERTICAL ROUTING

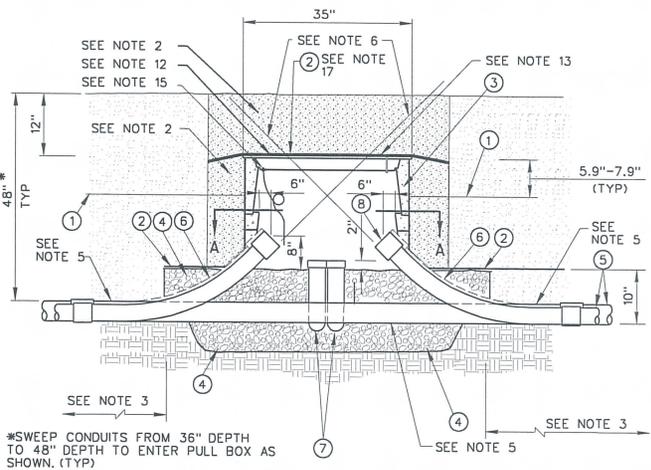
NOTES:

1. CORE DRILLING THROUGH AN OBSTRUCTION MAY BE USED AS AN ALTERNATIVE METHOD, AS DIRECTED BY THE ENGINEER.
2. BACKFILL WITH TWO SACK TYPE B SLURRY CEMENT PER SECTION 207 OF THE STANDARD SPECIFICATIONS.

OBSTRUCTIONS

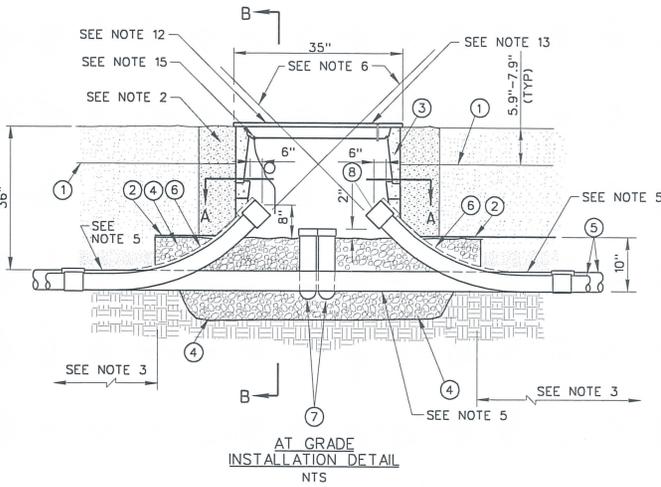
NEVADA DEPARTMENT OF TRANSPORTATION		
ITS CONDUIT CONFIGURATION		
Signed Original On File	M-14	(623)
CHEF OPER/MAINT ENGR.	ADOPTED 5/09	REVISION

K:\LAV_Public\Trans\092202\NDOT\014_Package\F\ACADD\xxx\F_L\DD002.dgn 6/30/2011 seon.robinson



**BELOW GRADE
INSTALLATION
DETAIL
NTS**

CONTRACTOR SHALL INSTALL ELECTRONIC MARKER SYSTEM (4" BALL MARKER) IN ALL BURIED NO. 7 PULL BOXES. THE COST OF THE MARKER SYSTEM SHALL BE INCLUDED IN THE UNIT COST OF THE BURIED PULL BOX.



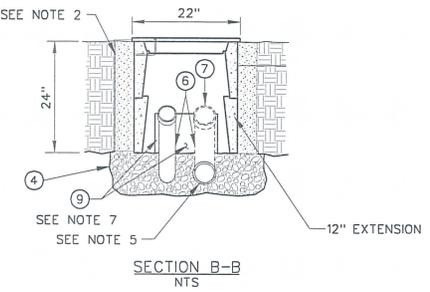
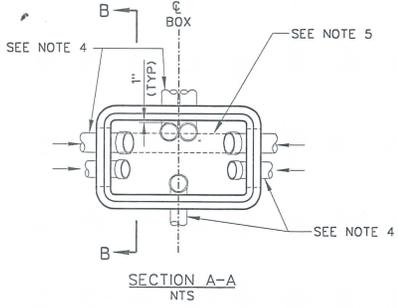
**AT GRADE
INSTALLATION
DETAIL
NTS**

QUALITY ASSURANCE

FED. RD. REG. NO.	STATE	PROJECT NO.	COUNTY	SHEET NO.
9	NEVADA	313-10-050	CLARK	ID-2

ITEM	DESCRIPTION
①	WARNING TAPE
②	30 LB FELT PAPER
③	NO. 7 PULL BOX WITH EXTENSION WITH EXCEPTIONS AS DRAWN
④	BEDDING MATERIAL PER NDOT STANDARD PLAN T-30.1.18
⑤	SCH. 40 PVC OR HDPE CONDUIT(S) (SEE PLANS FOR SIZE AND QUANTITY)
⑥	45 DEGREE PVC ELBOW, OR HDPE BEND 36" RADIUS
⑦	90 DEGREE PVC ELBOW, OR HDPE BEND 15" RADIUS
⑧	CONDUIT BELL END (TYPICAL)
⑨	KNOCK OUT 8" x 12"

- NOTES:**
- NUMBERS IN CIRCLES REFER TO ITEMS IN TABLE.
 - BACKFILL ACCORDING TO NDOT STANDARD PLANS AND SPECIFICATIONS.
 - TRUNK LINE CONDUIT FROM THE TYPICAL TRENCH SECTION SHALL NOT DEFLECT BY MORE THAN ONE FOOT PER 10 FEET FROM THE ALIGNMENT PRECEDING OR FOLLOWING THE PULL BOX.
 - SEE PLAN SHEETS FOR NUMBER AND SIZE OF CONDUIT(S).
 - NEW TRUNK LINE FIBER OPTIC CONDUIT(S) SHALL PASS UNDER NO. 7 PULL BOXES. AT PULL POINTS OR CONDUIT TRANSITION LOCATIONS (BRIDGE STRUCTURES, METAL CONDUIT TO HDPE OR PVC, ETC.) ALL CONDUITS SHALL ENTER PULL BOX.
 - BOTTOM OF CONDUIT CENTERLINE SHALL BE ALIGNED TO EXIT TOP OF PULL BOX TO FACILITATE CABLE PULLING PER SECTION 623.01.03 OF THE STANDARD SPECIFICATIONS.
 - USE FELT PAPER TO BLOCK OPENING BETWEEN CONDUITS.
 - INSTALL CONDUIT PLUG ON EACH EMPTY CONDUIT ENTERING PULL BOX.
 - SEAL ENDS OF ALL CONDUITS WITH CABLES OR CONDUCTORS WITH NDOT APPROVED MATERIAL.
 - A PULL BOX EXTENSION CAN BE ELIMINATED IF THE PULL BOX IS SUPPLIED WITH A DEPTH OF 24" OR GREATER.
 - PULL BOX HEIGHT ABOVE FINISHED GRADE SHALL PERMIT 4" OF SURFACE LANDSCAPING, IF APPLICABLE, TO MATCH EXISTING CONDITIONS.
 - THIS PULL BOX SHALL BE DESIGNED FOR TRAFFIC AREAS. STEEL COVERS SHALL BE USED, COVER AND BOX SHALL SUPPORT AASHTO H20-44 TRUCK LOADING.
 - "FAST" SHALL BE THE TITLE ENGRAVED IN THE LID. BOND AND GROUND LID PER SECTION 623.02.17 OF THE STANDARD SPECIFICATIONS.
 - GROUND CONDUCTOR(S) SHALL BE BONDED AND GROUNDED PER STANDARD SPECIFICATIONS (AS REQUIRED).
 - PULL BOX LID BONDING/GROUND CONDUCTOR SHALL BE 4 FEET OF #4 GREEN STRANDED GROUND WIRE, CAD WELDED TO THE LID PER NDOT REQUIREMENTS. GROUND WIRE SHALL BE COILED FOR FUTURE BONDING AND GROUNDED. IF PULL BOX INSTALLATION IS REPLACING AN EXISTING PULL BOX, THEN THE CONDUCTOR SHALL BE BONDED/GROUNDED TO THE EXISTING GROUNDED SYSTEM.
 - GROUNDED AND BONDING CABLES WILL BE INSTALLED WHEN NEW CONDUCTORS AND CABLES ARE INSTALLED.
 - FOR BELOW GRADE INSTALLATIONS, COVER TOP OF PULL BOX WITH 30 LB FELT PAPER TO HELP PROTECT METAL LID.
 - CONTRACTOR TO GPS LOCATE AND BURY (AS SPECIFIED) ALL PULL BOXES PER NDOT GUIDE "SPECIAL INSTRUCTIONS FOR SURVEY, MAPPING, OR GIS CONSULTANTS," CURRENT EDITION.
 - FOR NO. 5 PULL BOXES, INSTALL CONDUITS AND BEDDING PER DETAILS THIS SHEET.



Designed By:	RWF		
Detailed By:	BLH		
Checked By:	MDC		
	NO.	DESCRIPTION	DATE
		ISSUE RECORD	

Call before you dig
811
1-800-227-2600

FAST
Call before you dig
Underground utility location
1-702-432-5300

CALL BEFORE YOU DIG
1-702-227-2929

QUALITY ASSURANCE SUBMITTAL

FOR REVIEW ONLY
SUBJECT TO REVISION
NOT FOR CONSTRUCTION
7/01/11

Kimley-Horn and Associates, Inc.
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2080 E. FLAMINGO RD, SUITE 210
LAS VEGAS, NV 89119
PHONE: (702) 734-5666 FAX: (702) 735-4949

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

FAST PACKAGE *Model*

**NO. 7 PULL BOX WITH EXTENSION
TYPICAL INSTALLATION
DETAIL**

100' / 1" IN. PLOT SCALE seon.robinson



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: Modified Type 7⁸⁹ ITS Pull Box Locking Detail
Note: A separate form is required for each standard detail.

Previously used: Contract Number: 3573 Contract Sheet Numbers: T38
Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: FOR ANTI-THEFT PROTECTION
ADD AFTER MOD 9 PB DETAILS

Requestor Information: Name: *Theresa Mune* Phone: ~~12777~~ 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

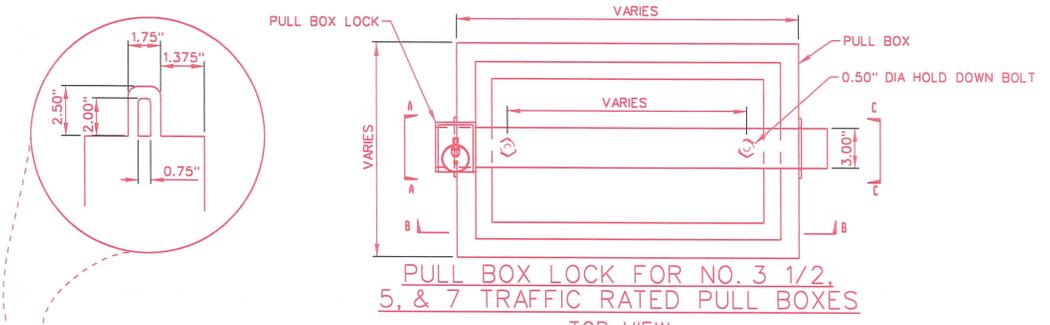
Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

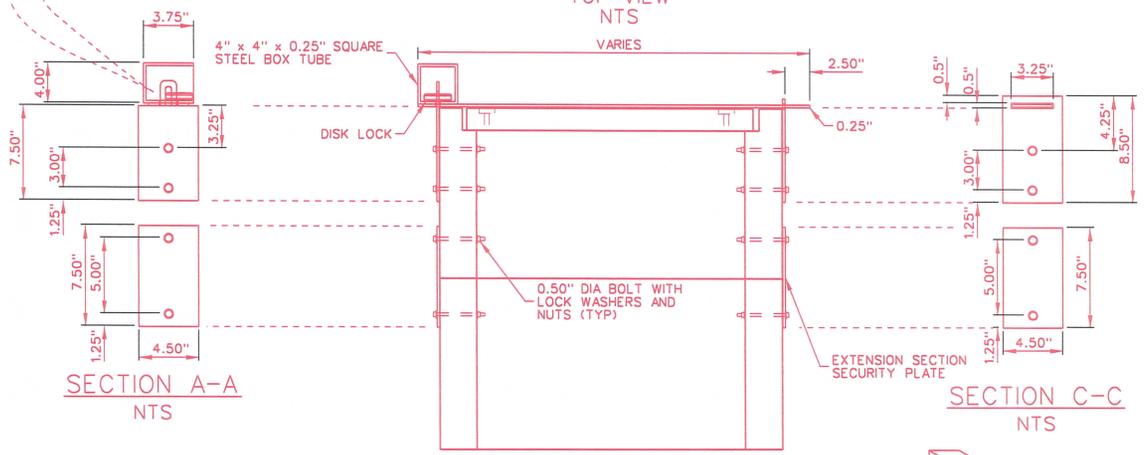
Notes: _____

X-1



PULL BOX LOCK FOR NO. 3 1/2, 5, & 7 TRAFFIC RATED PULL BOXES

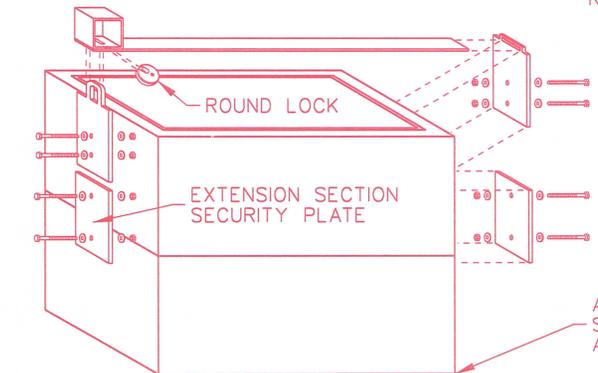
TOP VIEW NTS



SECTION A-A NTS

SECTION C-C NTS

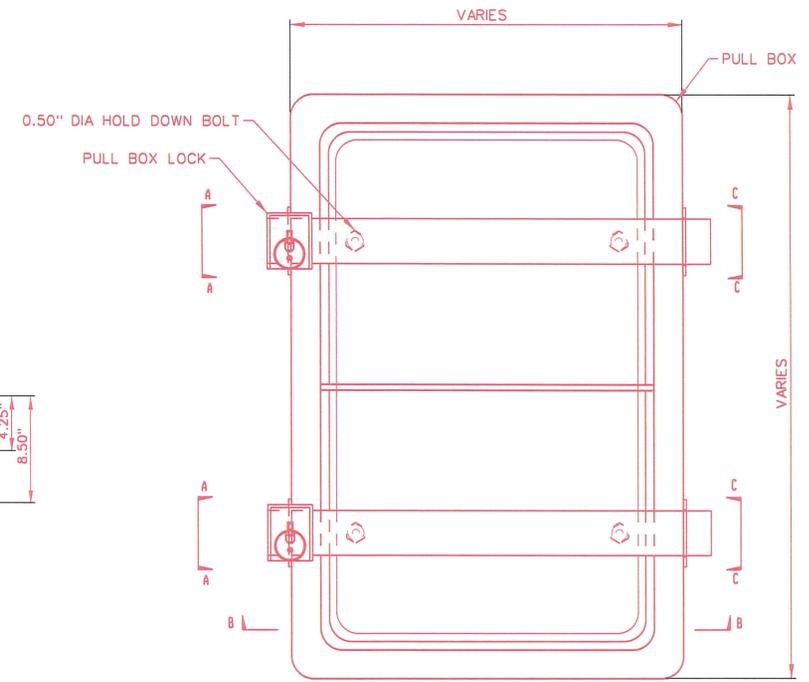
SECTION B-B NTS



NO. 3 1/2, 5, & 7 PULL BOX LOCK ASSEMBLY

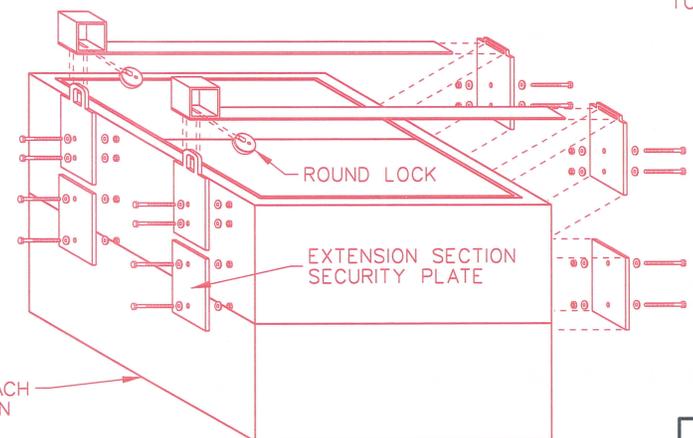
TOP VIEW NTS

*LOCKING MECHANISM MUST COVER HOLD DOWN BOLTS



NO. 9 PULL BOX (TYP)

TOP VIEW NTS



NO. 9 PULL BOX LOCK ASSEMBLY

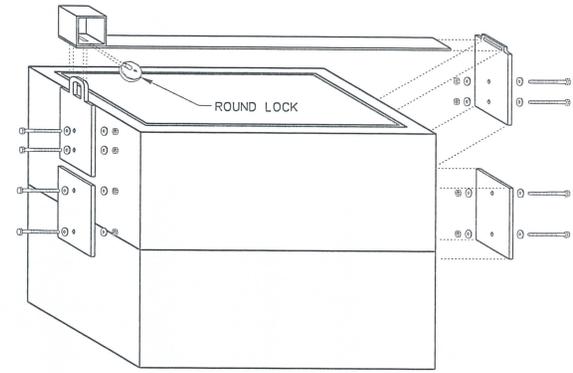
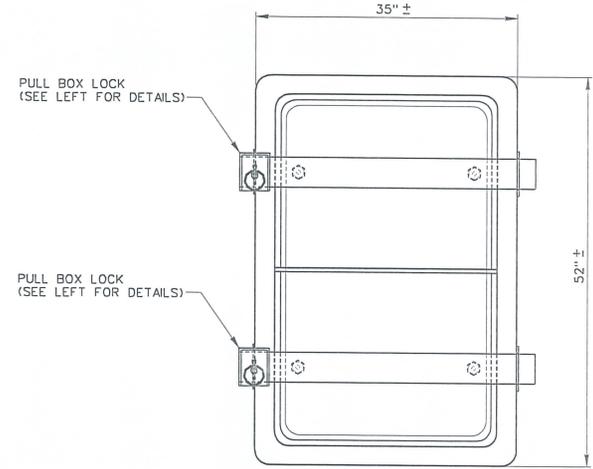
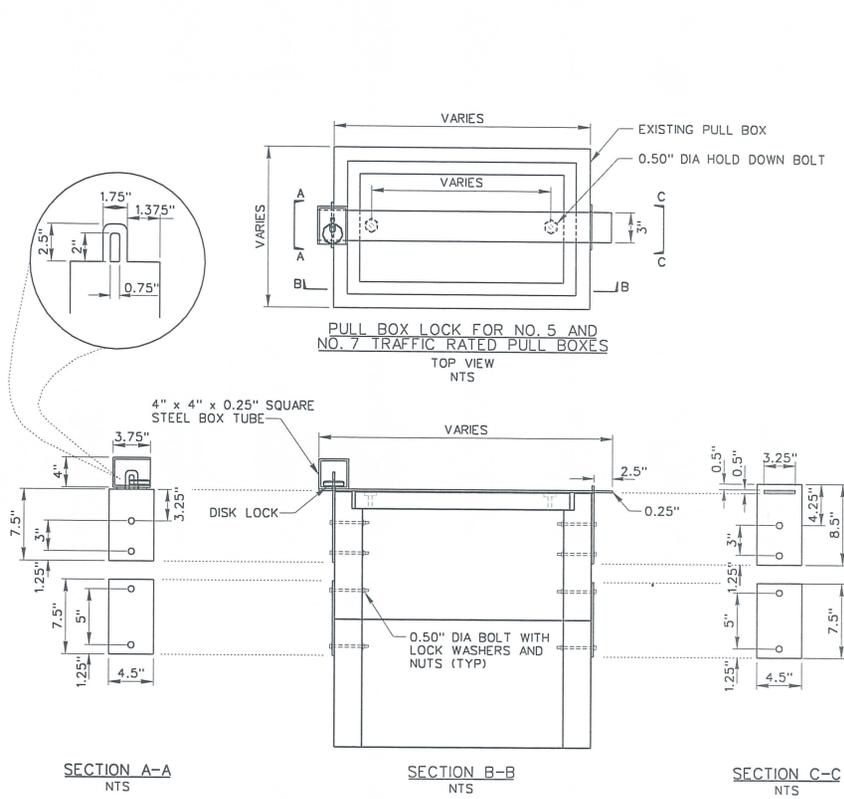
TOP VIEW NTS

*LOCKING MECHANISM MUST COVER HOLD DOWN BOLTS

STATE OF NEVADA DEPARTMENT OF TRANSPORTATION		
PULL BOX LOCKING DETAIL		
DET. • (000)	Signed Original On File	
ADOPTED 4/98	REVISED 4/98	CHIEF SAFETY/TRAFFIC ENGR.

QUALITY ASSURANCE

FED. RD. REG. NO.	STATE	PROJECT NO.	COUNTY	SHEET NO.
9	NEVADA	313-10-050	CLARK	ID-4



K:\LAV_PublicTrans\092202_NDOT\014_Package F\CADD\xxxFLD004.dgn

6/30/2011

Designed By:	RWF		
Detailed By:	BLH		
Checked By:	MDC		
	NO.	DESCRIPTION	DATE
		ISSUE RECORD	

Call before you dig
811

FAST
Call before you dig
Underground
1-800-227-2600

Call before you dig
Call before you dig
1-702-432-5300

Call before you dig
Call before you dig
1-702-227-2929

QUALITY ASSURANCE SUBMITTAL

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SUBJECT TO REVISION
NOT FOR CONSTRUCTION
7/01/11

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2080 E. FLAMINGO RD, SUITE 210
LAS VEGAS, NV 89119
PHONE: (702) 734-5666 FAX: (702) 735-4949

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

FAST PACKAGE F
**PULL BOX LOCK
ITS DETAIL**

sean.robinson



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: TYPE II DMS SIGN SUPPORT STRUCTURE
Note: A separate form is required for each standard detail.

Previously used: Contract Number: _____ Contract Sheet Numbers: _____
Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: USED ON RANCHO ITS PROJECT (LPA)
AND STATEWIDE ITS PROJECT (DISTRICT
CONTRACT) ADD AFTER CURRENT SHEET T-88
SEE ATTACHED

Requestor Information: Name: *Therese H. Mene* Phone: ~~1263~~ 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

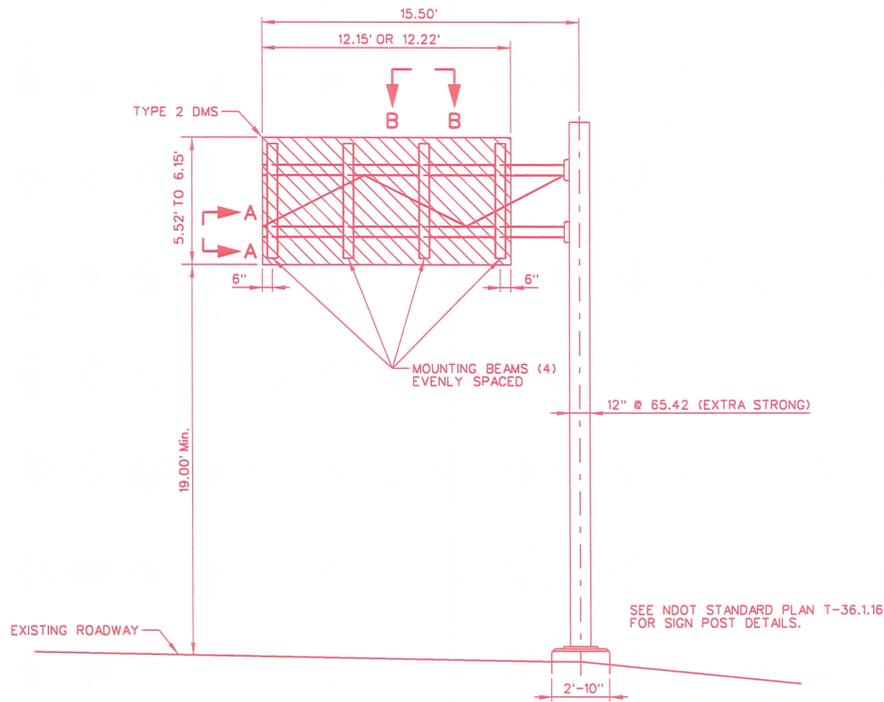
Notes: _____

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

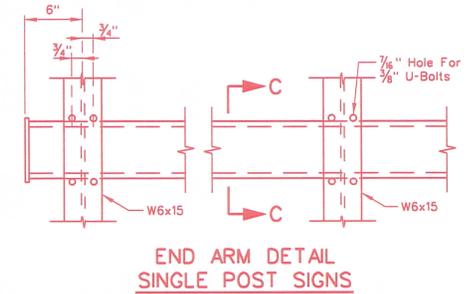
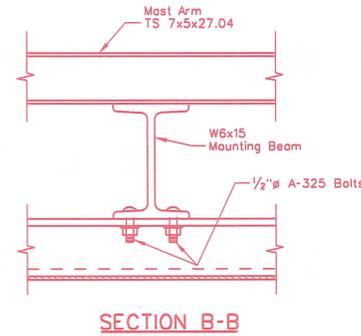
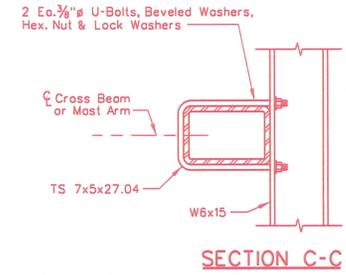
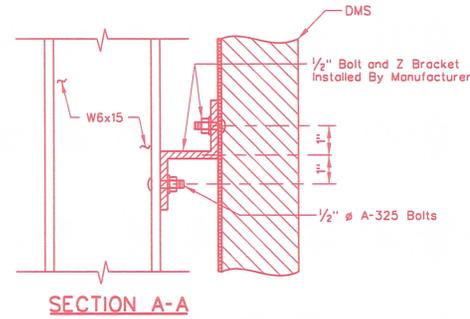
PRELIMINARY

SUBJECT TO REVISION
\$\$\$\$done\$\$\$\$

TYPE 2 DYNAMIC MESSAGE SIGN



ELEVATION



NOTES:

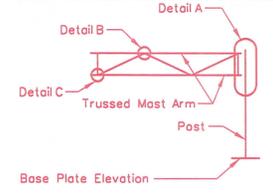
1. FLAT WASHERS REQUIRED ON ALL BOLTS, 1 OR 2 AS NECESSARY.
2. ALL NUTS TO HAVE FIBER INSERTS.
3. HIGH STRENGTH BOLTS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C, OR MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50. WASHERS, NUTS, AND BOLTS IN ANY ASSEMBLY SHALL BE GALVANIZED BY THE SAME PROCESS. LUBRICATE THE THREADS WITH A DYED LUBRICANT.
4. SEE NDOT STANDARD PLAN SHEET T-36.113 FOR ADDITIONAL DETAILS.

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

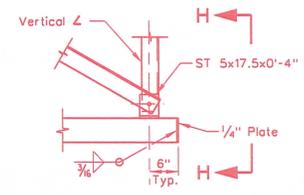
TYPE 2 DMS SINGLE POST DMS ELEVATION AND MOUNTING DETAIL

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

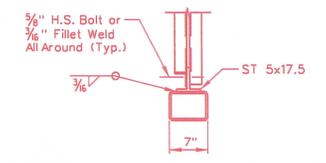
PRELIMINARY
SUBJECT TO REVISION
5555dne555



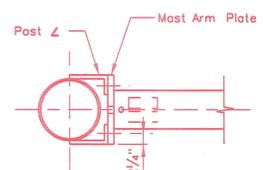
**TRUSSED MAST ARM SERIES
TYPE C2**



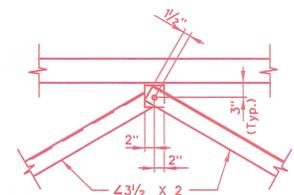
DETAIL C



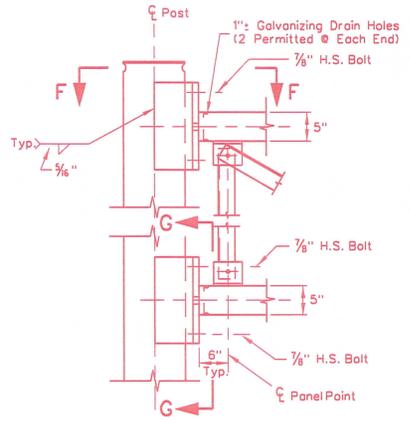
VIEW H-H



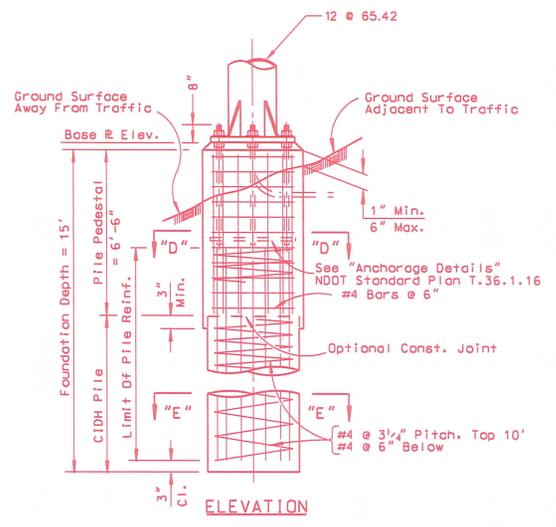
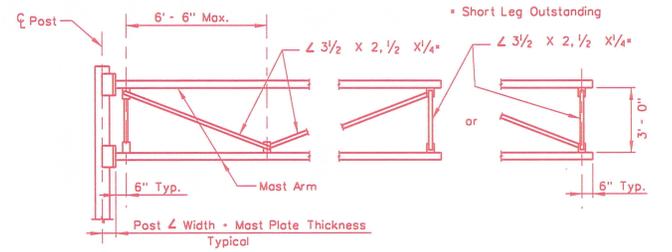
SECTION F-F



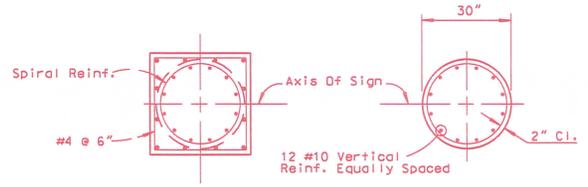
DETAIL B



DETAIL A



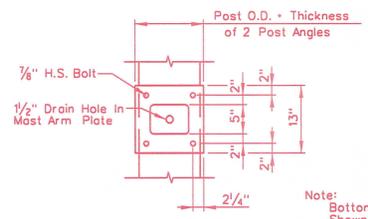
ELEVATION



SECTION "D"- "D"

SECTION "E"- "E"

**12" POST
PILE FOUNDATION**



SECTION G-G

Note:
Bottom Connection
Shown, Top Similar.

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

TYPE 2 DMS
OVERHEAD SIGN
FOUNDATION AND
CONNECTION DETAILS



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: ~~ITS~~ DIRECTIONAL DRILLING TYPICAL
Note: A separate form is required for each standard detail.

Previously used: Contract Number: 3474 Contract Sheet Numbers: _____
Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: USED ON ALL ITS CONTRACTS
PLACE AFTER TRENCH DETAIL T30-1.2.1

Requestor Information: Name: *[Signature]* Phone: ~~725/9714~~ 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

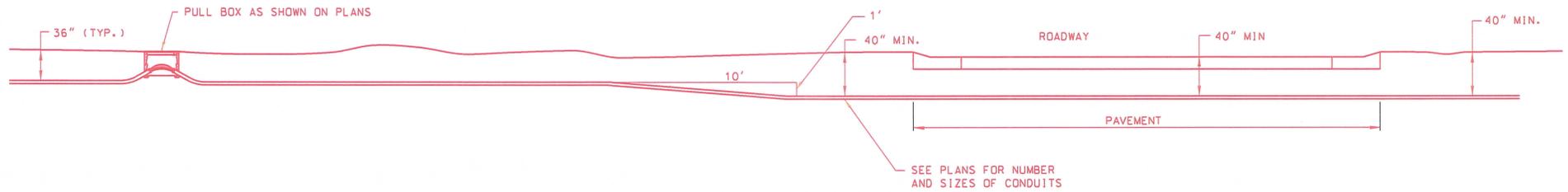
Reviewed by: Signature: _____ Date: _____

Notes: _____

PRELIMINARY

SUBJECT TO REVISION
SSSSdneSSS

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			



TYPICAL DIRECTIONAL DRILLING INSTALLATION

NTS

NOTES:

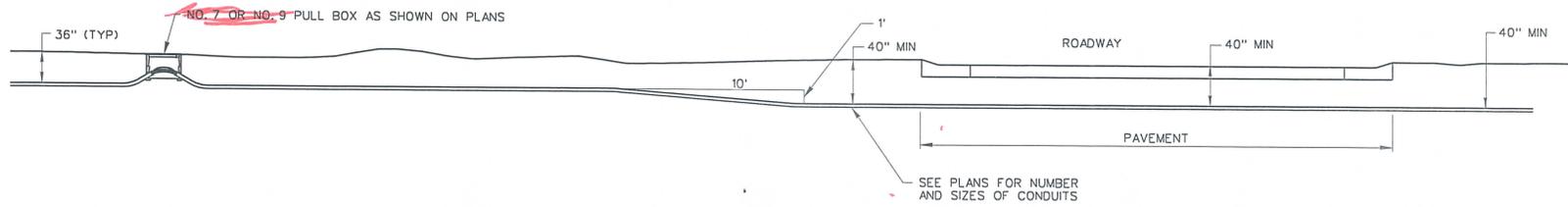
1. CONDUIT TO BE DIRECTIONAL DRILLED TO A MINIMUM DEPTH OF 40 INCHES BELOW THE PAVEMENT SURFACE FOR THE LENGTH OF PAVEMENT.
2. CONTRACTOR SHALL USE A BACK PULLED OR INSTALLATION METHOD THAT DOES NOT ROTATE OR TWIST MULTIPLE CONDUITS DURING INSTALLATION.
3. CONDUIT IS INCLUDED IN PAYMENT.

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

**DIRECTIONAL
DRILLING TYPICAL**

QUALITY ASSURANCE

FED. RD. REG. NO.	STATE	PROJECT NO.	COUNTY	SHEET NO.
9	NEVADA	313-10-050	CLARK	ID-10



TYPICAL DIRECTIONAL DRILLING INSTALLATION
NTS

NOTES:

- CONDUIT TO BE DIRECTIONAL DRILLED TO A MINIMUM DEPTH OF 40 INCHES BELOW THE PAVEMENT SURFACE FOR THE LENGTH OF PAVEMENT.
- CONTRACTOR SHALL USE A BACK PULLED OR INSTALLATION METHOD THAT DOES NOT ROTATE OR TWIST MULTIPLE CONDUITS DURING INSTALLATION.

Conduit is included in paytm

Ditch and Drilling

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6/30/2011
sean.robinson

Designed By:	RWF		
Detailed By:	BLH		
Checked By:	MDC		
	NO.	DESCRIPTION	DATE
		ISSUE RECORD	

QUALITY ASSURANCE SUBMITTAL
FOR REVIEW ONLY
SUBJECT TO REVISION
NOT FOR CONSTRUCTION
7/01/11

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
FAST PACKAGE F
TYPICAL DIRECTIONAL DRILLING
INSTALLATION AND TRENCH
DETAILS



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: BURIED CONDUIT ROUTING

Note: A separate form is required for each standard detail.

Previously used: Contract Number: 3474 Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: CONDUIT PLACEMENT AROUND OBSTRUCTIONS.
ADD AFTER DIRECTIONAL DRILLING
DETAIL

Requestor Information: Name: Thomas Munn Phone: ~~1279114~~ 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

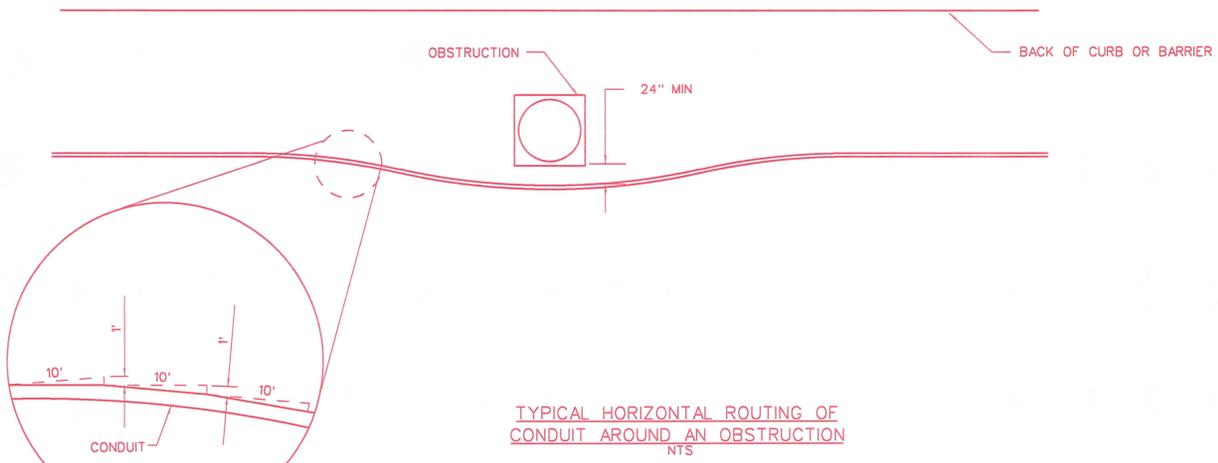
Reviewed by: Signature: _____ Date: _____

Notes: _____

PRELIMINARY

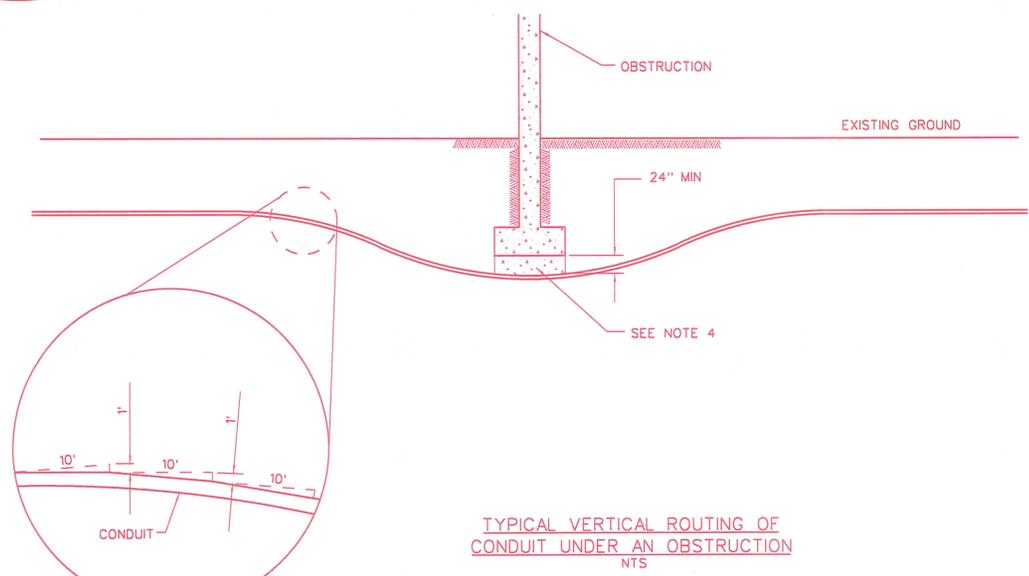
SUBJECT TO REVISION
 \$\$\$\$\$\$

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			



NOTES:

1. CONDUIT DEFLECTION SHALL NOT EXCEED ONE FOOT IN THE HORIZONTAL OR VERTICAL DIRECTION PER 10 FEET IN LONGITUDINAL DIRECTION (TYP).
2. CONDUIT SHALL BE ROUTED NO CLOSER THAN 24 INCHES TO ANY OBSTRUCTION.
3. CORE DRILLING THROUGH AN OBSTRUCTION MAY BE USED AS AN ALTERNATIVE METHOD, SUBJECT TO ENGINEER'S APPROVAL. NO DIRECT PAYMENT.
4. BACKFILL UNDER FOOTING SHALL BE CONCRETE SLURRY (CLASS B) PER NDOT SPECIFICATIONS, SECTION 207.02.03 (SLURRY CEMENT BACKFILL).

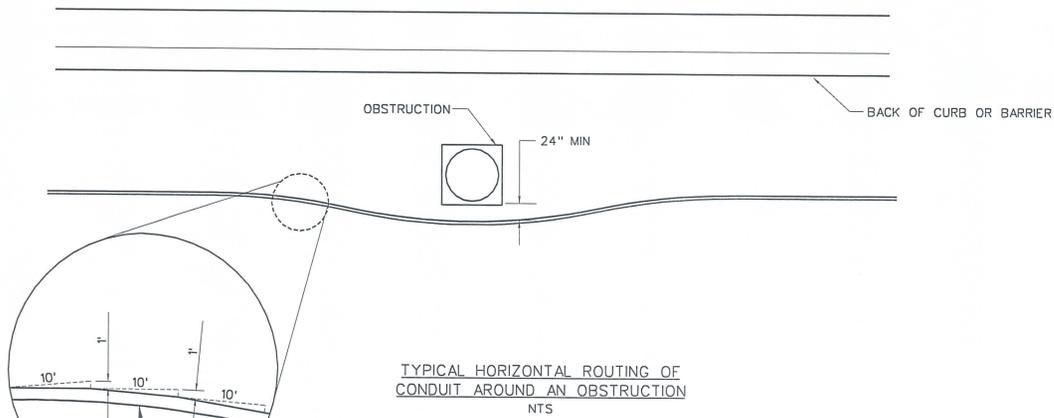


STATE OF NEVADA
 DEPARTMENT OF TRANSPORTATION

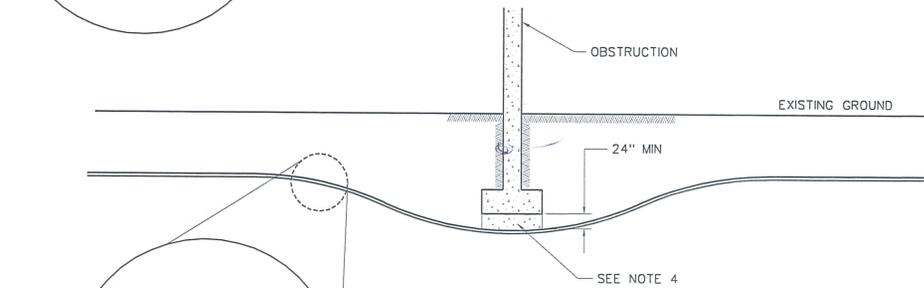
BURIED CONDUIT
 ROUTING AROUND
 OBSTRUCTION ITS
 DETAIL

QUALITY ASSURANCE

FED. RD. REG. NO.	STATE	PROJECT NO.	COUNTY	SHEET NO.
9	NEVADA	313-10-050	CLARK	ID-9



TYPICAL HORIZONTAL ROUTING OF CONDUIT AROUND AN OBSTRUCTION
NTS



TYPICAL VERTICAL ROUTING OF CONDUIT UNDER AN OBSTRUCTION
NTS

NOTES:

1. CONDUIT DEFLECTION SHALL NOT EXCEED ONE FOOT IN THE HORIZONTAL OR VERTICAL DIRECTION PER 10 FEET IN LONGITUDINAL DIRECTION (TYP).
2. CONDUIT SHALL BE ROUTED NO CLOSER THAN 24 INCHES TO ANY OBSTRUCTION.
3. CORE DRILLING THROUGH AN OBSTRUCTION MAY BE USED AS AN ALTERNATIVE METHOD, SUBJECT TO RESIDENT ENGINEER'S APPROVAL.
4. BACKFILL UNDER FOOTING SHALL BE CONCRETE SLURRY (CLASS B) PER NDOT SPECIFICATIONS, SECTION 207.02.03 (SLURRY CEMENT BACKFILL).

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6/30/2011 sean.r.obinson

Designed By:			
RWF			
Detailed By:			
BLH			
Checked By:	NO.	DESCRIPTION	DATE
MDC		ISSUE RECORD	

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7/01/11

Kimley-Horn and Associates, Inc.
© 2011 KIMLEY-HORN AND ASSOCIATES, INC.
2080 E. FLAMINGO RD, SUITE 210
LAS VEGAS, NV 89119
PHONE: (702) 734-5666 FAX: (702) 735-4949

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
FAST PACKAGE F
BURIED CONDUIT ROUTING
AROUND OBSTRUCTION
ITS DETAIL



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: FIBER MARKERS

Note: A separate form is required for each standard detail.

Previously used: Contract Number: _____ Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: WILL INCLUDE FOR ALL DISTRICTS AND

FAST

Requestor Information: Name: Thomas J. Mena Phone: ~~702/9714~~ 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

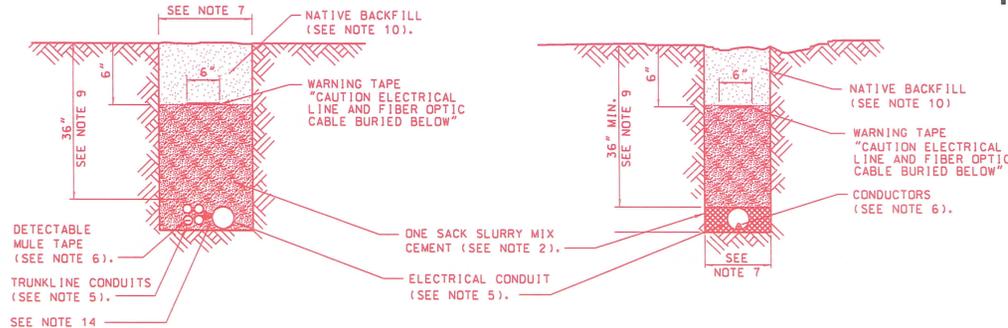
Reviewed by: Signature: _____ Date: _____

Notes: _____

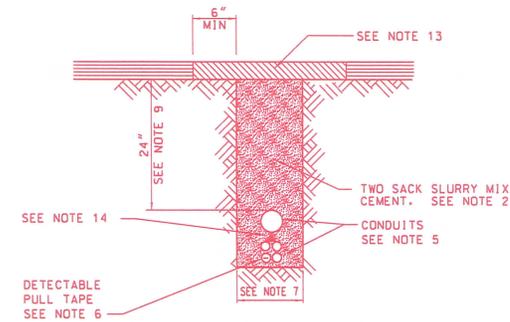
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SUBJECT TO REVISION
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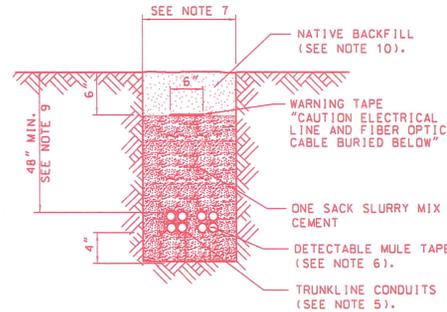
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			



TYPICAL UNPAVED TRENCHES
NTS

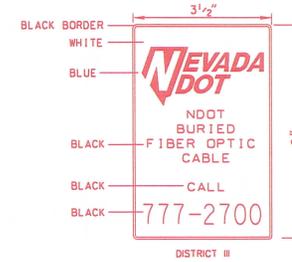
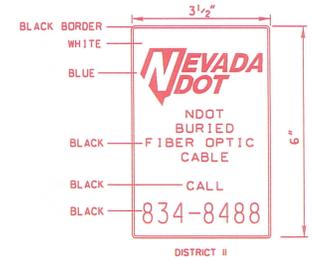
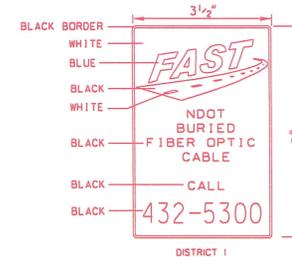


TYPICAL PAVED TRENCHES
SEE NDOT STANDARD T-30.1.2.1
NTS



TYPICAL UNPAVED FAST CONDUIT TRENCH
NTS

FIBER OPTIC CONDUIT MARKER STICKER
NTS



FIBER OPTIC CONDUIT MARKERS:

- NDOT APPROVED FIBER OPTIC MARKERS SHALL BE INSTALLED ALONG FIBER OPTIC CONDUIT RUNS AT:
- EACH SIDE OF ROAD CROSSINGS
 - CONDUIT TURN POINTS
 - AS NEEDED TO SEE FROM ONE MARKER TO ANOTHER OR AT 500 FEET SPACING
 - AT BURIED PULL BOX LOCATIONS

REFLECTIVE SHEETING FIBER OPTIC MARKER STICKERS SHALL BE INSTALLED ON FLEXIBLE GUIDE MARKERS. FLEXIBLE GUIDE MARKERS SHALL BE APPROXIMATELY 4in. WIDE AND 66in. IN HEIGHT, WITH A 18in. INSTALLATION DEPTH. EACH MARKER SHALL BE ORANGE IN COLOR AND HAVE 3in. X 12in. REFLECTIVE SHEETING AT THE TOP OF EACH SIDE OF THE MARKER. REFLECTIVE SHEETING SHALL MEET NDOT SECTION 716 REQUIREMENTS. EACH MARKER AND STICKER SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL CONTACT NDOT FOR THE PHONE NUMBER TO BE SHOWN ON STICKER. A LAYOUT OF THE STICKER SHALL BE PROVIDED TO NDOT FOR APPROVAL. STICKERS, MARKERS AND INSTALLATION SHALL BE INCLUDED IN THE UNIT PRICE FOR THE INSTALLATION OF CONDUIT.

TYPICAL FIBER OPTIC CONDUIT MARKER DETAILS
NTS

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

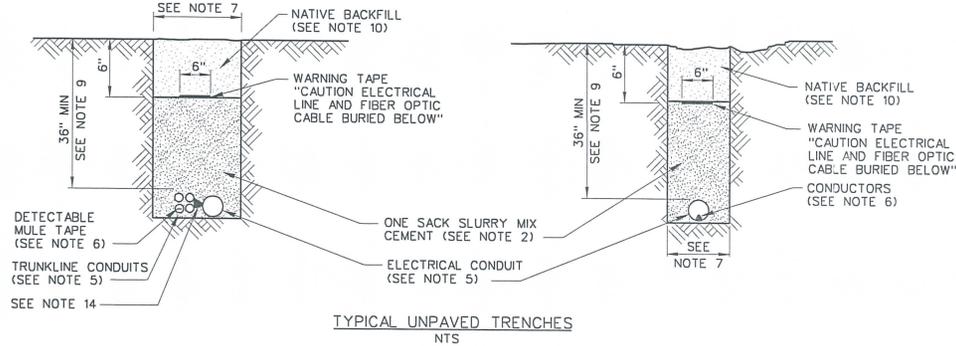
**CONDUIT TRENCH
PAVED AND UNPAVED
AREAS ITS DETAIL**

NOTES:

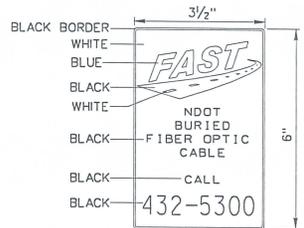
- THE TRENCH BOTTOM SHALL BE SMOOTH, FLAT AND WITHOUT SURFACE IRREGULARITIES; OTHERWISE, A SUFFICIENT AMOUNT OF BEDDING MATERIAL SHALL BE PLACED TO PROVIDE THE REQUIRED SURFACE.
- SLURRY MIX CEMENT SHALL BE FLOWABLE.
- ALL TRENCHES BETWEEN METER AND POWER SERVICES MUST BE APPROVED BY A UTILITY COMPANY CUSTOMER REPRESENTATIVE. ALL DIMENSIONS ARE MINIMUM. CONTRACTOR TO CONTACT NEVADA ENERGY OR CALL BEFORE YOU DIG AT 800-227-2600.
- CONDUIT COUPLINGS SHALL BE STAGGERED.
- CONDUIT SIZE AND NUMBER MAY VARY. MULTIPLE CONDUITS SHALL BE BANDED OR TAPED AT 10 FEET INTERVALS. SEE PLANS FOR NUMBER, SIZE AND TYPE OF CONDUITS.
- DETECTABLE PULL TAPE SHALL BE INSTALLED INSIDE ALL CONDUITS.
- TOTAL TRENCH WIDTH SHALL BE 6 inches WIDER THAN THE SUM OF OUTSIDE DIAMETERS OF CONDUIT(S) INSTALLED (3.0 inches EACH SIDE OF CONDUITS) UNLESS LESS WIDTH IS APPROVED BY ENGINEER. CONDUIT(S) SHALL BE CENTERED IN TRENCH. SEE PLANS FOR NUMBER AND SIZE.
- COORDINATE WITH "CALL BEFORE YOU DIG" AND THE NDOT DISTRICT OFFICE TO LOCATE ALL EXISTING UTILITIES PRIOR TO DIGGING.
- TRENCH DEPTHS AND CONDUIT COVER ARE TO BE MEASURED FROM FINAL GRADE.
- NATIVE BACKFILL SHALL NOT CONTAIN ROCKS LARGER THAN 3in.
- ALL SPOIL MATERIALS SHALL BE REMOVED OFFSITE BY THE CONTRACTOR ACCORDING TO NDOT STANDARD SPECIFICATION SECTION 107.14.
- RETURN DISTURBED AREA TO MATCH EXISTING GRADE.
- FOR PAVED TRENCHES, REMOVE AND REPLACE EXISTING SURFACE. NEW SURFACE MATERIAL SHALL MEET NDOT OR THE RESPECTIVE AGENCY REQUIREMENTS WHERE WORK IS BEING PERFORMED AND BE FROM AN APPROVED COMMERCIAL SOURCE. THIS WORK SHALL BE INCLUDED IN CONDUIT BID ITEM.
- USE CONDUIT SPACERS TO SEPARATE POWER CONDUITS FROM COMMUNICATION CONDUITS IN TRENCH BY AT LEAST 1in. PLACE SPACERS AT INTERVALS OF A MAXIMUM 5 FEET.
- INSTALL ALL CONDUIT PER JURISDICTION STANDARDS AND SPECIFICATIONS FOR CONSTRUCTION OUTSIDE FREEWAY RIGHT-OF-WAY.

QUALITY ASSURANCE

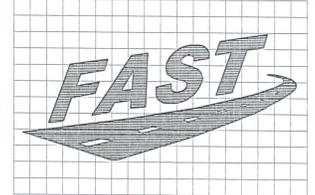
FED. RD. REG. NO.	STATE	PROJECT NO.	COUNTY	SHEET NO.
9	NEVADA	313-10-050	CLARK	ID-8



TYPICAL UNPAVED TRENCHES
NTS



FIBER OPTIC CONDUIT MARKER STICKER
NTS



FAST LOGO DETAIL FOR STICKER
NTS

FIBER OPTIC CONDUIT MARKERS:

- NDOT APPROVED FIBER OPTIC MARKERS SHALL BE INSTALLED ALONG FIBER OPTIC CONDUIT RUNS AT:
- EACH SIDE OF ROAD CROSSINGS
 - CONDUIT TURN POINTS
 - AS NEEDED TO SEE FROM ONE MARKER TO ANOTHER OR AT 500 FEET SPACING AT BURIED PULL BOX LOCATIONS

REFLECTIVE SHEETING FIBER OPTIC MARKER STICKERS SHALL BE INSTALLED ON FLEXIBLE GUIDE MARKERS. FLEXIBLE GUIDE MARKERS SHALL BE APPROXIMATELY 4" WIDE AND 66" IN HEIGHT, WITH A 18" INSTALLATION DEPTH. EACH MARKER SHALL BE ORANGE IN COLOR AND HAVE 3" x 12" REFLECTIVE SHEETING AT THE TOP SIDE OF THE MARKER. REFLECTIVE SHEETING SHALL MEET NDOT SECTION 716 REQUIREMENTS. EACH MARKER AND STICKER SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL CONTACT NDOT FOR THE PHONE NUMBER TO BE SHOWN ON STICKER. A LAYOUT OF THE STICKER SHALL BE PROVIDED TO NDOT FOR APPROVAL.

TYPICAL FIBER OPTIC CONDUIT MARKER DETAILS
NTS

NOTES:

- THE TRENCH BOTTOM SHALL BE SMOOTH, FLAT AND WITHOUT SURFACE IRREGULARITIES; OTHERWISE, A SUFFICIENT AMOUNT OF BEDDING MATERIAL SHALL BE PLACED TO PROVIDE THE REQUIRED SURFACE.
- SLURRY MIX CEMENT SHALL BE FLOWABLE.
- ALL TRENCHES BETWEEN METER AND POWER SERVICES MUST BE APPROVED BY A UTILITY COMPANY CUSTOMER REPRESENTATIVE. ALL DIMENSIONS ARE MINIMUM. CONTRACTOR TO CONTACT NVE AT 702-367-5555 OR CALL BEFORE YOU DIG AT 800-227-2600.
- CONDUIT COUPLINGS SHALL BE STAGGERED.
- CONDUIT SIZE AND NUMBER MAY VARY. MULTIPLE CONDUITS SHALL BE Banded OR TAPED AT 10 FT INTERVALS. SEE PLANS FOR NUMBER, SIZE AND TYPE OF CONDUITS.
- DETECTABLE PULL TAPE OR CONDUCTOR SHALL BE INSTALLED INSIDE ONE CONDUIT IN A TRENCH. ALL CONDUITS SHALL HAVE PULL ROPES.
- TOTAL TRENCH WIDTH SHALL BE 6" WIDER THAN THE SUM OF OUTSIDE DIAMETERS OF CONDUIT(S) INSTALLED (3" EACH SIDE OF CONDUITS) UNLESS LESS WIDTH IS APPROVED BY RESIDENT ENGINEER. CONDUIT(S) SHALL BE CENTERED IN TRENCH. SEE PLANS FOR NUMBER AND SIZE.
- COORDINATE WITH "CALL BEFORE YOU DIG" AND CLARK COUNTY TO LOCATE ALL EXISTING UTILITIES PRIOR TO DIGGING.
- TRENCH DEPTHS AND CONDUIT COVER ARE TO BE MEASURED FROM FINAL GRADE.
- NATIVE BACKFILL SHALL NOT CONTAIN ROCKS LARGER THAN 3".
- ALL SPOIL MATERIALS SHALL BE REMOVED OFFSITE BY THE CONTRACTOR ACCORDING TO NDOT STANDARD SPECIFICATION SECTION 107.14.
- RETURN DISTURBED AREA TO MATCH EXISTING GRADE.
- FOR PAVED TRENCHES, REFER TO NDOT STANDARD PLANS T-30.1.2.1.
- USE CONDUIT SPACERS TO SEPARATE POWER CONDUITS FROM COMMUNICATION CONDUITS IN TRENCH BY AT LEAST 1". PLACE SPACERS AT INTERVALS OF 5' MAXIMUM.

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6/30/2011
sean.robinson

Designed By:			
RWF			
Detailed By:			
BLH			
Checked By:	NO.	DESCRIPTION	DATE
MDC		ISSUE RECORD	

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7/01/11

Kimley-Horn and Associates, Inc.
© 2011 KIMLEY-HORN AND ASSOCIATES, INC.
2080 E. FLAMINGO RD, SUITE 210
LAS VEGAS, NV 89119
PHONE: (702) 734-5666 FAX: (702) 735-4949

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
FAST PACKAGE F
CONDUIT TRENCH PAVED
AND UNPAVED AREAS
ITS DETAIL



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: ITS POLES 80' CCTU

Note: A separate form is required for each standard detail.

Previously used: Contract Number: 3474 Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: USED ON ALL ITS PROJECTS

STATEWIDE

BRIDGE ACCEPTED.

Requestor Information: Name: [Signature] Phone: ~~129/14~~ 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

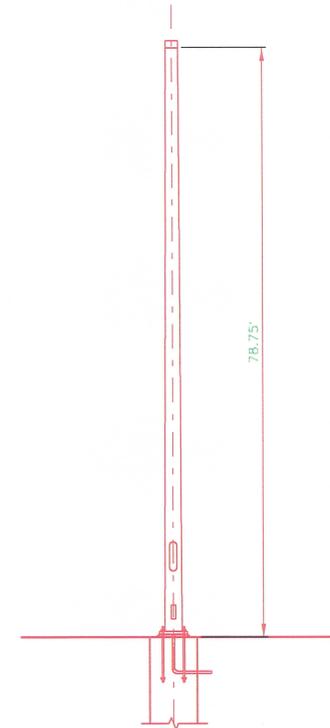
Notes: _____

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

GENERAL NOTES:

1. DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION 2009 WITH 2010 INTERIM REVISIONS.
2. LOADING
 - A. IMPORTANCE FACTORS (I_f & I_r): 1.0
 - B. DRAG COEFFICIENT (C_d): 0.45 - 2.0 DEPENDING ON SHAPE OF MEMBER AND WIND VELOCITY
 - C. MAXIMUM WIND LOAD: 23.4 psf * C_d * I
 - D. NATURAL WIND GUSTS: 5.2 psf * C_d * I
 - E. WIND SPEED: 90 MPH
 - F. ICE LOAD: 3 psf
 - G. FATIGUE CATEGORY: I
3. SERVICEABILITY
MAXIMUM 1" DISPLACEMENT FOR 30MPH WIND SPEED.
4. STRUCTURAL STEEL
 - A. POLE MATERIAL IS ASTM A572 GRADE 50 STEEL.
 - B. STEEL TUBING SHALL CONFORM TO ASTM A500, GRADE C.
 - C. HOT DIP GALVANIZE STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
 - D. HARDWARE SHALL BE GALVANIZED AS PER ASTM A153
5. MATERIAL REQUIREMENTS
 - A. STRUCTURAL STEEL: $F_y = 50$ ksi
 - B. DRILLED SHAFT: $F'_{cs} = 4000$ psi
 - C. REINFORCING STEEL: ASTM A615 GRADE 60

ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION 2010 ARTICLE 5.10. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.
6. BOLTED CONNECTIONS.
 - A. ACCOMPLISH ALL STRUCTURAL HIGH STRENGTH BOLTING, EXCEPT ANCHOR BOLTS, USING AASHTO M164 BOLTS.
 - B. USE A HARDENED FLAT WASHER BETWEEN THE NUT AND THE CONNECTED PART.
 - C. USE HIGH STRENGTH BOLTS WITH DTI'S OR TENSION CONTROL INDICATORS INSTALLED PER SUBSECTION 506.03.07 OF THE STANDARD SPECIFICATIONS.
 - D. FABRICATE ANCHOR BOLTS FROM MATERIAL CONFORMING TO ASTM F1554 GRADE 55.
 - E. HOT-DIP GALVANIZE ALL STEEL PARTS IN ACCORDANCE WITH ASTM A153 (AASHTO M232), EXCEPT AS SPECIFIED FOR HIGH STRENGTH BOLTING.
 - F. HIGH STRENGTH BOLTS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C, OR MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50. WASHERS, NUTS, AND BOLTS IN ANY ASSEMBLY SHALL BE GALVANIZED BY THE SAME PROCESS. DTI SHALL BE MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695. LUBRICATE THREADS WITH A DYED LUBRICANT.
7. WELDED CONNECTIONS
 - A. WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED ON THE PLANS.
 - B. WELD IN ACCORDANCE WITH SECTION 506 OF THE STANDARD SPECIFICATIONS.
 - C. USE ONLY WELDERS QUALIFIED ACCORDING TO ANSI/AASHTO/AWS D1.1-2000, SECTION 4 FOR THE TYPE OF JOINT, ELECTRODE, POSITION OF THE JOINT, AND THE MATERIAL THICKNESS.
 - D. USE ONLY PREQUALIFIED JOINTS.
 - E. TEST ALL FULL PENETRATION GROOVE WELDS ULTRASONICALLY IN ACCORDANCE WITH SECTION 6, PART F OF ANSI/AASHTO/AWS D1.1-2000. ACCEPT OR REJECT EACH WELD DISCONTINUITY ON THE BASIS OF ITS INDICATION RATING AND ITS LENGTH IN ACCORDANCE WITH SECTION 9.3.
 - F. HAVE ALL FILLET WELDS VISUALLY INSPECTED BY QUALIFIED PERSONNEL. ANY WELDS FOUND TO HAVE INCOMPLETE FUSION, OVERLAP OR CRACKS WILL BE REJECTED.
8. GROUTING
 - A. SHIM BASE PLATES TO FINISH ELEVATION AND COMPLETELY FILL PLATE AREA WITH A HIGH STRENGTH, NON-FERROUS, NON-SHRINK GROUT.
 - B. FORMULATE GROUT TO COMPLY WITH THE ASTM C1107.
 - C. TAPER ALL FINISHED SURFACES AT 45 DEGREE +/-.
9. FOUNDATION: DRILLED SHAFT.
10. GROUND ALL STRUCTURES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
11. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.



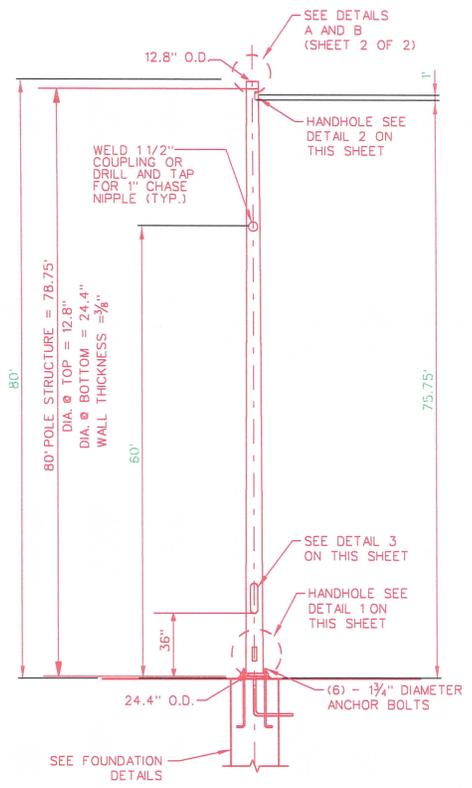
80 FOOT ITS POLE
NTS

SHEET 1 OF 4

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

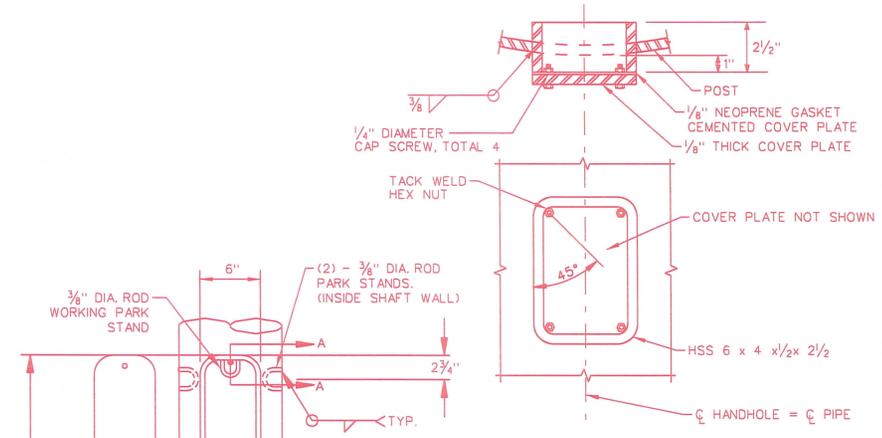
80 FOOT ITS POLE

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

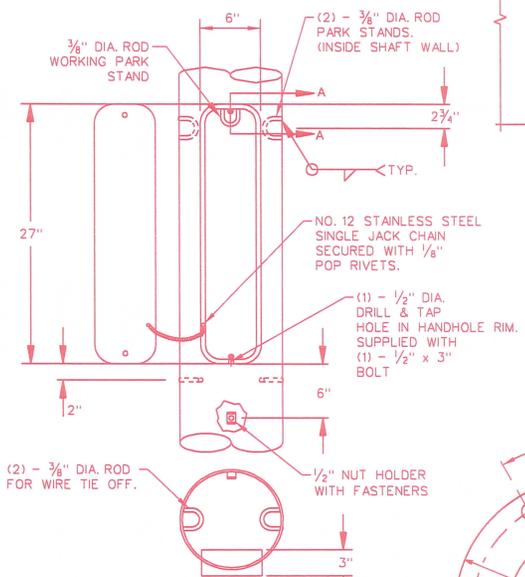


TYPICAL POLE ELEVATION
NTS

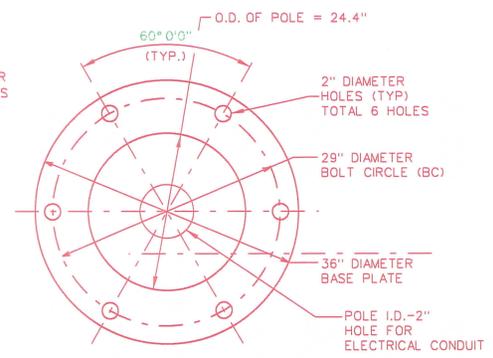
(ALL HEIGHTS ARE APPROXIMATE, ADJUST IN FIELD)



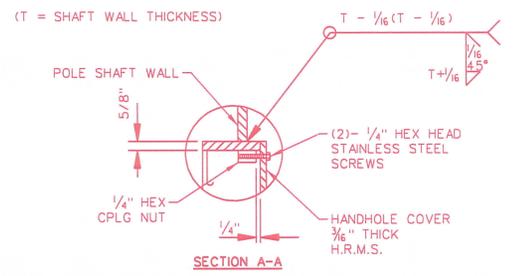
DETAIL 2
NTS



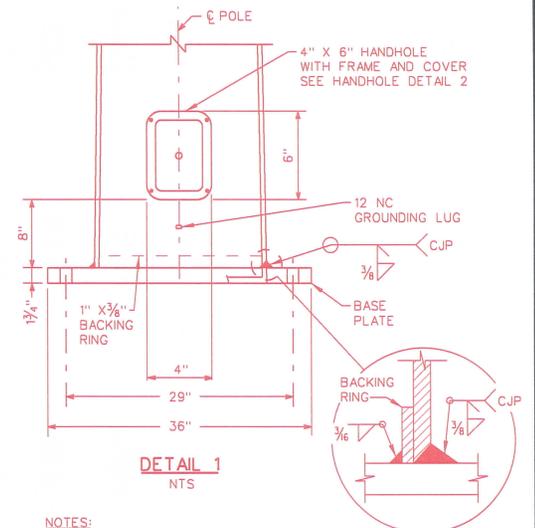
DETAIL 3
NTS



TYPICAL BASE PLATE PLAN
NTS



SECTION A-A

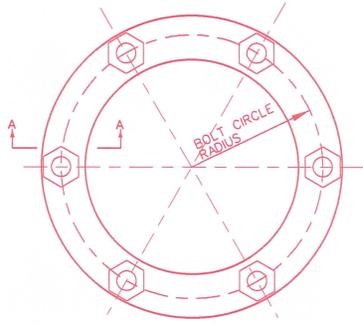


DETAIL 1
NTS

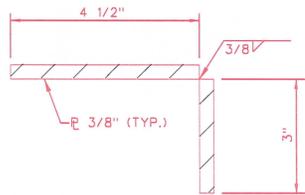
NOTES:

1. DEVICE MOUNT ASSEMBLIES TO BE INSTALLED AND MOUNTED PER MANUFACTURER'S SPECIFICATION AND RECOMMENDATIONS.
2. SEE PLAN SHEETS AND NETWORK DIAGRAMS FOR INSTALLATION LOCATIONS AND EQUIPMENT TO BE INSTALLED.
3. INSTALL STEEL RAIN TIGHT REMOVABLE CAP ON TOP OF POLE IF POLE TOP DEVICE IS NOT SPECIFIED IN PLANS.
4. SWEEPS FOR CONDUIT SHALL NOT BE LESS THAN MINIMUM BENDING RADIUS OF FIBER.

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

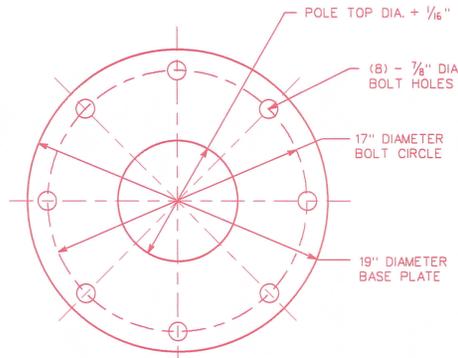


ANCHOR BOLT TEMPLATE

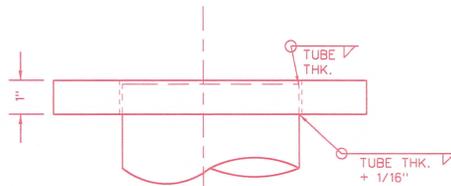


SECTION A-A

NOTE:
CONTRACTOR SHALL COORDINATE WITH CCTV
LOWERING DEVICE VENDOR FOR LOWERING
DEVICE MOUNTING REQUIREMENTS BEFORE
CCTV POLE FABRICATION

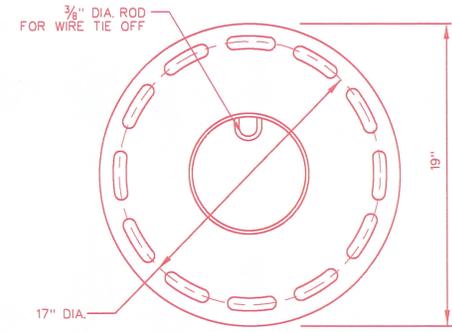


TOP VIEW

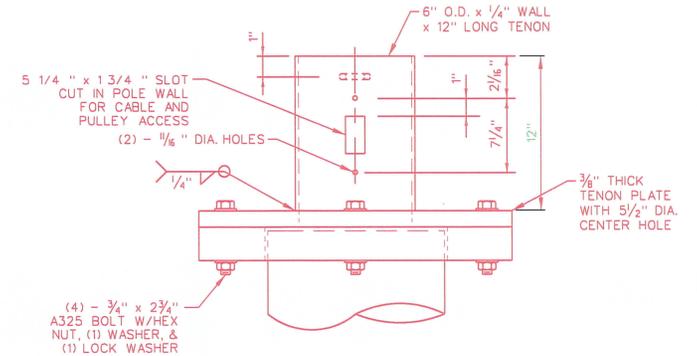


SIDE VIEW
TYPICAL CCTV
SEE DETAIL B
POLE TOP MOUNT PLATE(FOR TENON MOUNT)

DETAIL A
NTS



TOP VIEW



SIDE VIEW
TYPICAL TENON DETAIL
(VARIES BY MANUFACTURER)

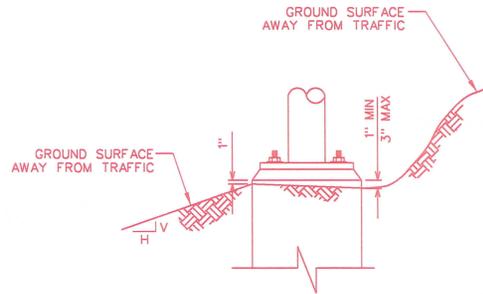
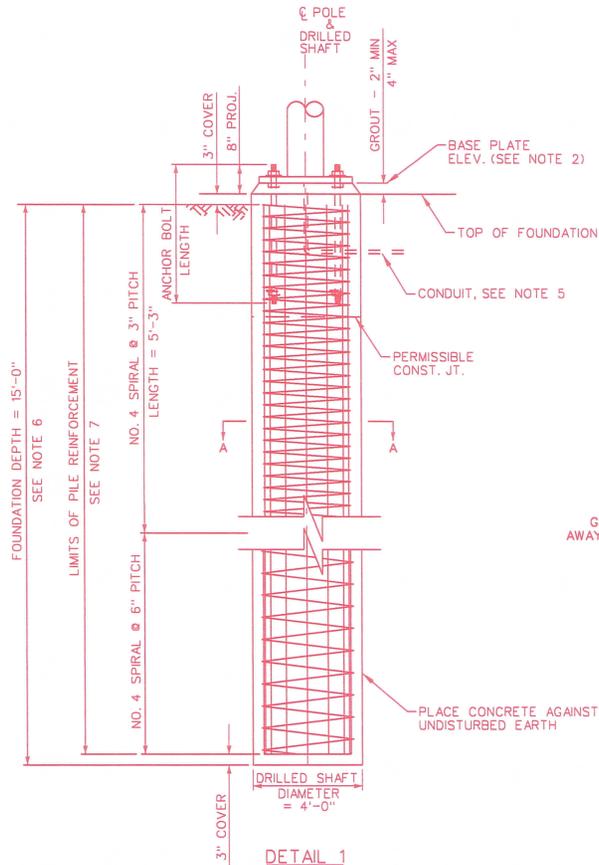
DETAIL B
NTS

SHEET 3 OF 4

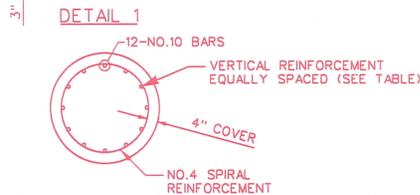
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

80 FOOT ITS POLE

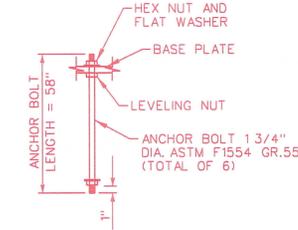
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			



DETAIL 2



SECTION A-A



DETAIL 3
ANCHOR BOLT DETAIL
(SEE NOTE 8)

ITS POLE	ANCHOR BOLTS DIA.	ANCHOR BOLT LENGTH	VERTICAL REINFORCING STEEL	DRILLED SHAFT DIAMETER	FOUNDATION DEPTH
80'	1 3/4"	58"	12 - NO. 10	48"	16'

NOTES:

- FOR ANCHOR BOLT LAYOUT, REFER TO POLE MANUFACTURER'S SPECIFICATIONS.
- CONFIRM BASE PLATE ELEVATION WITH ENGINEER PRIOR TO POURING OF FOUNDATION.
- DRILLED SHAFT SHALL BE CONSTRUCTED ACCORDING TO SECTION 509 OF THE STANDARD SPECIFICATIONS.
- PILE SHALL BE FORMED 6" MIN. BELOW GROUND SURFACE. REMAINDER TO BE PLACED AGAINST UNDISTURBED MATERIAL.
- FOR NUMBER AND SIZE OF CONDUIT IN FOUNDATION, SEE ELECTRICAL PLAN SHEETS, UNLESS NOTED OTHERWISE.
- DEPTH OF FOUNDATION (DRILLED SHAFT) WILL BE MEASURED FROM THE LOWEST POINT ON FINISHED GRADE AND LENGTH OF PILE WILL CHANGE ACCORDINGLY.
- TERMINATE NO. 4 SPIRAL REINFORCEMENT WITH 135 DEGREE HOOK AROUND MAIN VERTICAL REINFORCEMENT.
- ALL ANCHOR BOLTS AND NUTS SHALL CONFORM TO THE SPECIFICATIONS ASTM DESIGNATION F1554 GR.55 AND SHALL BE FURNISHED WITH COMMERCIAL QUALITY WASHERS.
- THREAD UPPER 8" OF ANCHOR BOLTS AND GALVANIZE ENTIRE BOLT IN ACCORDANCE WITH ASTM A153 (AASHTO M232).
- BEFORE PLACING THE FOUNDATION, CONTACT THE NDOT GEOTECHNICAL ENGINEERING SECTION FOR FURTHER INVESTIGATION WHEN THE FOLLOWING SOIL CONDITIONS ARE ENCOUNTERED: (A) SOILS WITH HIGH ORGANIC CONTENT; (B) THE SITE CANNOT SUPPORT THE DRILL RIG; OR (C) FIRM BEDROCK IS ENCOUNTERED.
- BONDING AND GROUNDING SHALL MEET THE NATIONAL ELECTRIC CODE AND NDOT STANDARDS. SEE POLE GROUNDING DETAIL ON NDOT STANDARD PLAN T-30.116.
- STRUCTURAL BOLTS AND OTHER STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 (AASHTO M232).

SHEET 4 OF 4

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

80 FOOT ITS POLE

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			1

GENERAL NOTES:

1. DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION 2009 WITH 2010 INTERIM REVISIONS.

2. LOADING
 A. IMPORTANCE FACTORS (I_f & I_r): 1.0
 B. DRAG COEFFICIENT (C_d): 0.45 - 2.0 DEPENDING ON SHAPE OF MEMBER AND WIND VELOCITY
 C. MAXIMUM WIND LOAD: 23.4 psf * C_d * I
 D. NATURAL WIND GUSTS: 5.2 psf * C_d * I
 E. WIND SPEED: 90 MPH
 F. ICE LOAD: 3 psf

3. SERVICEABILITY
 MAXIMUM 1" DISPLACEMENT FOR 30MPH WIND SPEED.

4. STRUCTURAL STEEL
 A. POLE MATERIAL IS ASTM A572 GRADE 50 STEEL.
 B. STEEL TUBING SHALL CONFORM TO ASTM A500, GRADE C.
 C. HOT DIP GALVANIZE STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
 D. HARDWARE SHALL BE GALVANIZED AS PER ASTM A153

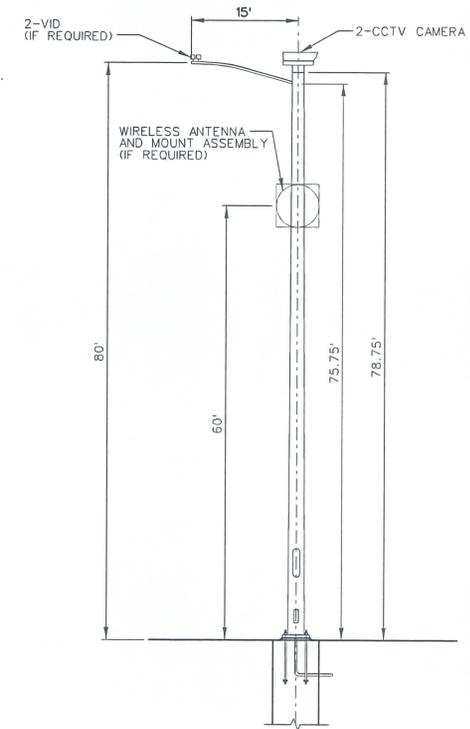
5. MATERIAL REQUIREMENTS
 A. STRUCTURAL STEEL : F_y = 50 ksi
 B. DRILLED SHAFT: CONCRETE CLASS S F'c = 4000 psi
 C. REINFORCING STEEL : ASTM A615 GRADE 60
 ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION 2010 ARTICLE 5.10. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.

6. BOLTED CONNECTIONS.
 A. ACCOMPLISH ALL STRUCTURAL HIGH STRENGTH BOLTING, EXCEPT ANCHOR BOLTS, USING AASHTO M164 BOLTS.
 B. USE A HARDENED FLAT WASHER BETWEEN THE NUT AND THE CONNECTED PART.
 C. USE HIGH STRENGTH BOLTS WITH DTI'S OR TENSION CONTROL INDICATORS INSTALLED PER SUBSECTION 506.03.07 OF THE STANDARD SPECIFICATIONS.
 D. FABRICATE ANCHOR BOLTS FROM MATERIAL CONFORMING TO ASTM F1554 GRADE 36.
 E. HOT-DIP GALVANIZE ALL STEEL PARTS IN ACCORDANCE WITH ASTM A153, EXCEPT AS SHOWN FOR ONLY THE TOP 12" FOR ANCHOR BOLTS, AND AS SPECIFIED FOR HIGH STRENGTH BOLTING.
 F. HIGH STRENGTH BOLTS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C, OR MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50. WASHERS, NUTS, AND BOLTS IN ANY ASSEMBLY SHALL BE GALVANIZED BY THE SAME PROCESS. LUBRICATE THREADS WITH A DYED LUBRICANT.

7. WELDED CONNECTIONS
 A. WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED ON THE PLANS.
 B. WELD IN ACCORDANCE WITH SECTION 506 OF THE STANDARD SPECIFICATIONS.
 C. USE ONLY WELDERS QUALIFIED ACCORDING TO ANSI/AASHTO/AWS D1.1-2000, SECTION 4 FOR THE TYPE OF JOINT, ELECTRODE, POSITION OF THE JOINT, AND THE MATERIAL THICKNESS.
 D. USE ONLY PREQUALIFIED JOINTS.
 E. TEST ALL FULL PENETRATION GROOVE WELDS ULTRASONICALLY IN ACCORDANCE WITH SECTION 6, PART F OF ANSI/AASHTO/AWS D1.1-2000. ACCEPT OR REJECT EACH WELD DISCONTINUITY ON THE BASIS OF ITS INDICATION RATING AND ITS LENGTH IN ACCORDANCE WITH SECTION 9.3.
 F. HAVE ALL FILLET WELDS VISUALLY INSPECTED BY QUALIFIED PERSONNEL. ANY WELDS FOUND TO HAVE INCOMPLETE FUSION, OVERLAP OR CRACKS WILL BE REJECTED.

8. GROUTING
 A. SHIM BASE PLATES TO FINISH ELEVATION AND COMPLETELY FILL PLATE AREA WITH A HIGH STRENGTH, NON-FERROUS, NON-SHRINK GROUT.
 B. FORMULATE GROUT TO COMPLY WITH THE ASTM C1107.
 C. TAPER ALL FINISHED SURFACES AT 45 DEGREE +/-.
9. FOUNDATION: DRILLED SHAFT
10. GROUND ALL STRUCTURES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
11. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.

POLE ATTACHMENTS				
DESCRIPTION	QTY.	WEIGHT/EA (POUNDS)	EPA/EA (sq.ft)	HEIGHT ON POLE (ft)
CCTV	2	300	8.5	80'
VID	2	20	0.85	80'
WIRELESS ANTENNA AND MOUNT ASSEMBLY	1	500	12	60'

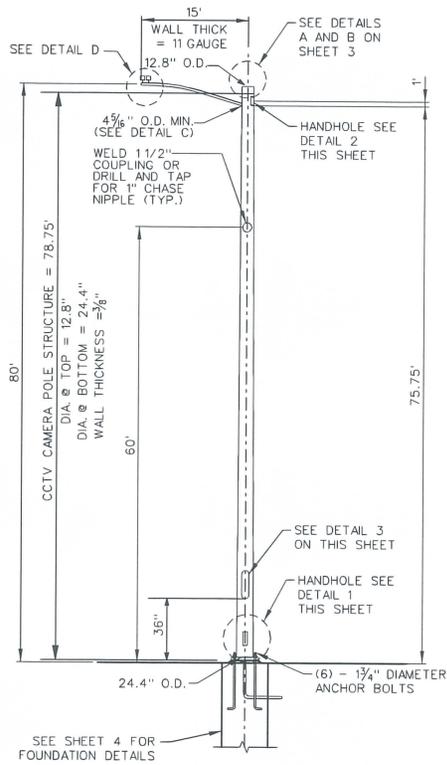


80 FOOT ITS POLE
 NTS

No.	DESCRIPTION	DATE
	ISSUE RECORD	

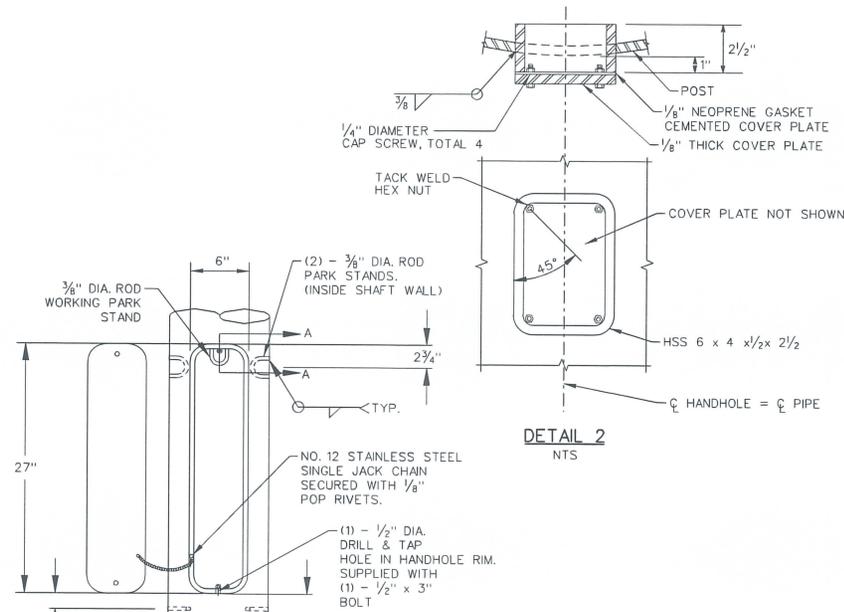
STATE OF NEVADA DEPARTMENT OF TRANSPORTATION	
80 FOOT CCTV CAMERA ITS POLE	
PRELIMINARY SUBJECT TO REVISION DECEMBER 2011	
	2210 Corporate Office Suite 100 Henderson, Nevada 89014 Telephone: 702/264-7275 Fax: 702/261-7226
	DESIGNED BY <u>JL</u> DRAWN BY <u>DJE</u> CHECKED BY <u>PP</u> REVIEWED BY <u>JAC</u>

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			2

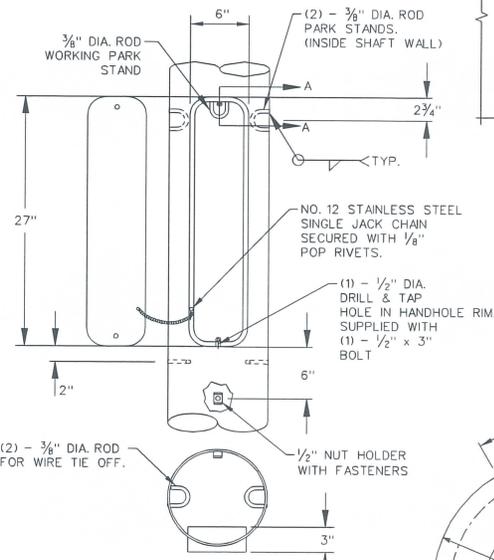


TYPICAL POLE ELEVATION
NTS

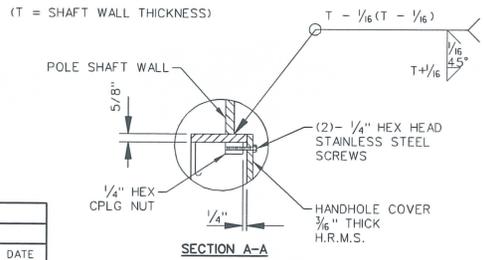
(ALL HEIGHTS ARE APPROXIMATE, ADJUST IN FIELD)



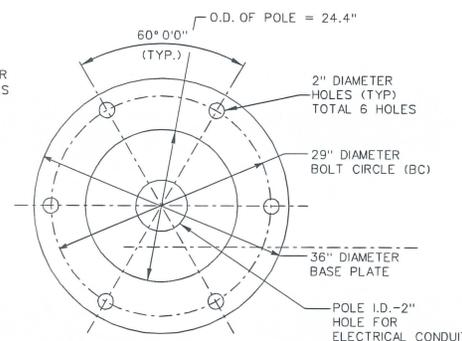
DETAIL 2
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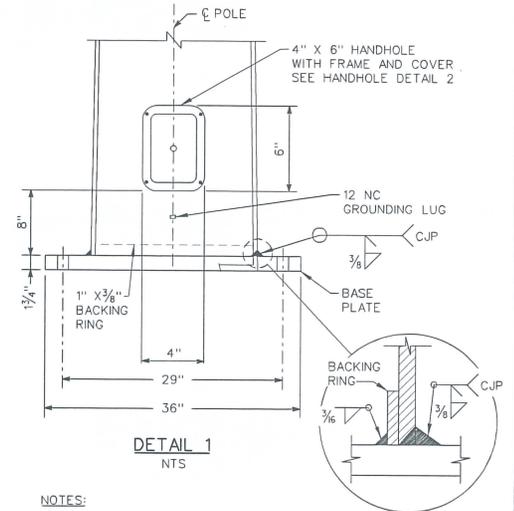
DETAIL 3
NTS



SECTION A-A



TYPICAL BASE PLATE PLAN
NTS



DETAIL 1
NTS

NOTES:

1. CCTV MOUNT ASSEMBLY TO BE INSTALLED AND MOUNTED PER MANUFACTURER'S SPECIFICATION.
2. WIRELESS ANTENNA ASSEMBLIES TO BE INSTALLED AND MOUNTED PER MANUFACTURER'S RECOMMENDATIONS.
3. POLE MATERIAL IS ASTM A572 GRADE 50 STEEL, STRUCTURAL STEEL SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
4. SEE PLAN SHEETS AND NETWORK DIAGRAMS FOR INSTALLATION LOCATIONS AND EQUIPMENT TO BE INSTALLED AT EACH LOCATION.
5. INSTALL STEEL RAIN TIGHT REMOVABLE CAP ON TOP OF CCTV MOUNTING PLATE IF CCTV IS NOT SPECIFIED IN PLANS.
6. SWEEPS FOR CONDUIT SHALL NOT BE LESS THAN MINIMUM BENDING RADIUS OF FIBER.
7. IF VID IS NOT SPECIFIED IN PLANS, DO NOT INSTALL MAST ARM AND INSTALL STEEL RAIN TIGHT REMOVABLE PLATE OVER MAST ARM CONNECTION.

No.	DESCRIPTION	DATE
	ISSUE RECORD	

PRELIMINARY
SUBJECT TO REVISION
DECEMBER 2011

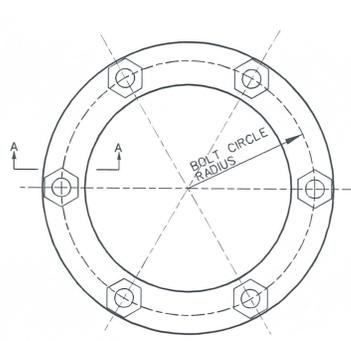
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

**80 FOOT CCTV
CAMERA ITS POLE
DETAILS 1 OF 2**

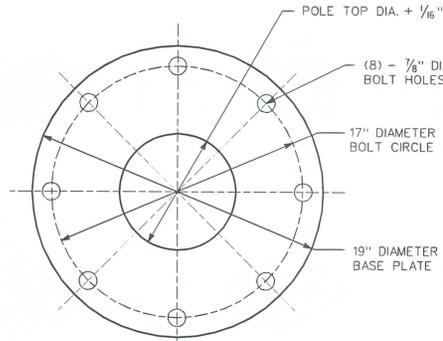
ATKINS
2270 Corporate Circle, Suite 100
 Henderson, Nevada 89014
 Telephone: 702/261-7275
 Fax: 702/261-7295

DESIGNED BY	JL
DRAWN BY	DJE
CHECKED BY	PP
REVIEWED BY	JAC

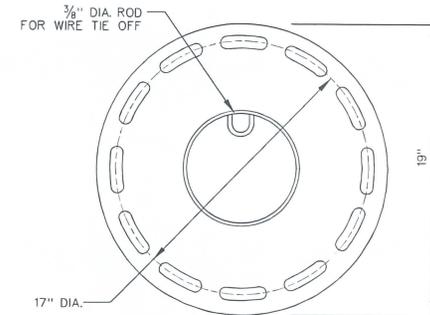
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			3



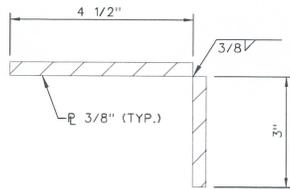
ANCHOR BOLT TEMPLATE



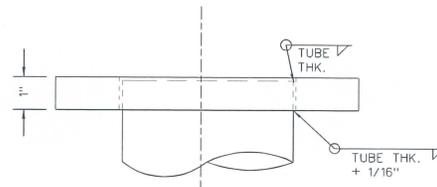
TOP VIEW



TOP VIEW

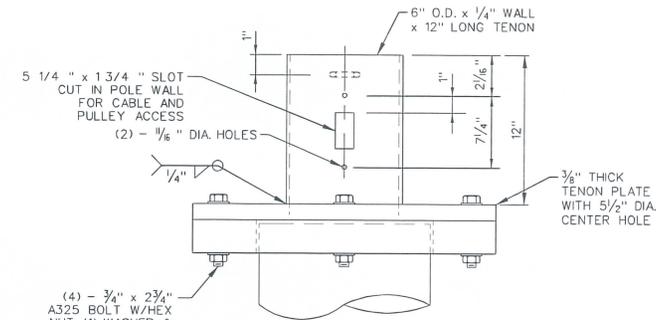


SECTION A-A



SIDE VIEW
TYPICAL CCTV POLE TOP MOUNT PLATE (FOR TENON MOUNT)
SEE DETAIL B

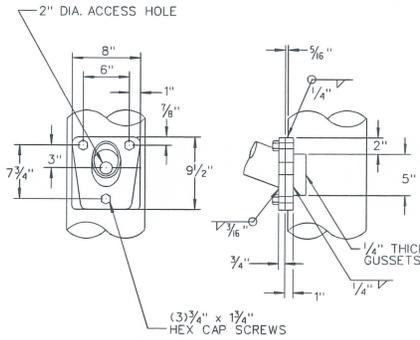
DETAIL A
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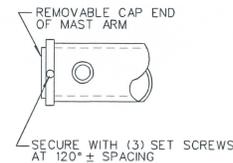
SIDE VIEW
TYPICAL TENON DETAIL
(VARIES BY MANUFACTURER)

DETAIL B
NTS

NOTE:
CONTRACTOR SHALL COORDINATE WITH CCTV LOWERING DEVICE VENDOR FOR LOWERING DEVICE MOUNTING REQUIREMENTS BEFORE CCTV POLE FABRICATION



DETAIL C

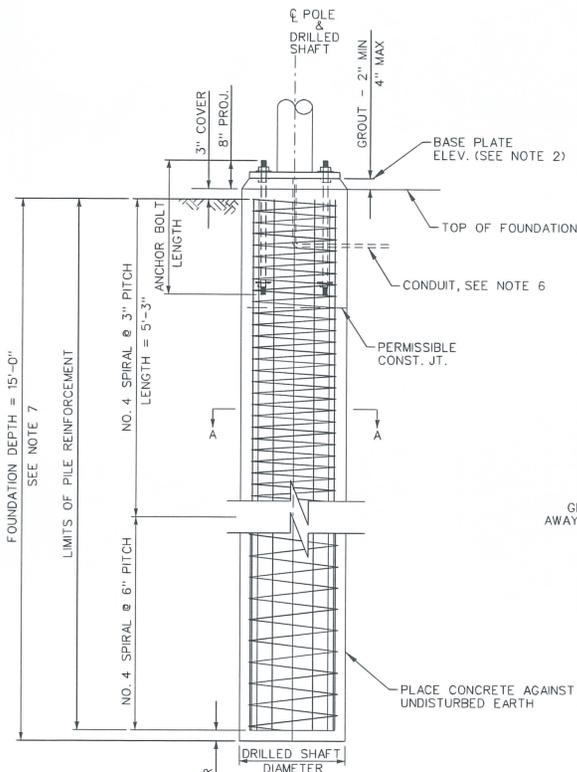


DETAIL D

No.	DESCRIPTION	DATE
	ISSUE RECORD	

PRELIMINARY SUBJECT TO REVISION DECEMBER 2011	STATE OF NEVADA DEPARTMENT OF TRANSPORTATION 80 FOOT CCTV CAMERA ITS POLE DETAILS 2 OF 2	DESIGNED BY <u>JL</u> DRAWN BY <u>DJE</u> CHECKED BY <u>PP</u> REVIEWED BY <u>JAC</u>
	2210 Corporate Center Drive, Suite 100 Henderson, Nevada 89015 Telephone: 702/261-9275 Fax: 702/261-9290	

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			4

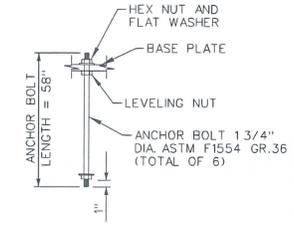
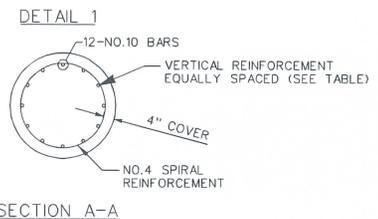
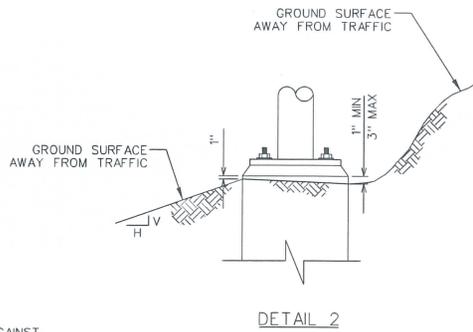


SOILS CONDITIONS (FLAT TO 2H:1V)					
SITE FOUNDATION MATERIAL	MINIMUM DRY UNIT WEIGHT (pcf)	INTERNAL FRICTION ANGLE (DEG)	P-Y MODULUS k _v (lb/in ³)	COHESION (psf)	STRAIN E ₅₀
CLAY	100	N/A	N/A	1000	0.007
SAND	100	30 (35*)	25	N/A	N/A

* IN CASE THE SLOPE OF 2H:1V TO 1.5H:1V

ITS POLE	ANCHOR BOLTS DIA.	ANCHOR BOLT LENGTH	VERTICAL REINFORCING STEEL	DRILLED SHAFT DIAMETER	FOUNDATION DEPTH
80'	1 3/4"	58"	12 - NO. 10	48"	15'

- NOTES:
- FOR ANCHOR BOLT LAYOUT SEE SHEET 2.
 - CONFIRM BASE PLATE ELEVATION WITH ENGINEER PRIOR TO POURING OF FOUNDATION.
 - DRILLED SHAFT SHALL BE CLASS "S" PCC AS SPECIFIED IN THE SPECIAL PROVISIONS.
 - PRIOR TO ERECTION OF THE POLE, BACKFILL WHICH IS EQUIVALENT TO THE SURROUNDING MATERIAL SHALL BE IN PLACE AND COMPACTED ACCORDING TO CONTRACT STANDARDS.
 - PILE SHALL BE FORMED 6" MIN. BELOW GROUND SURFACE. REMAINDER TO BE PLACED AGAINST UNDISTURBED MATERIAL.
 - FOR NUMBER AND SIZE OF CONDUIT IN FOUNDATION, SEE ELECTRICAL PLAN SHEETS.
 - DEPTH OF FOUNDATION (DRILLED SHAFT) WILL BE MEASURED FROM THE LOWEST POINT ON FINISHED GRADE AND LENGTH OF PILE WILL CHANGE ACCORDINGLY.
 - TERMINATE NO. 4 SPIRAL REINFORCEMENT WITH 135 DEGREE HOOK AROUND MAIN VERTICAL REINFORCEMENT.
 - ALL ANCHOR BOLTS AND NUTS SHALL CONFORM TO THE SPECIFICATIONS ASTM DESIGNATION F1554 GR.36 AND SHALL BE FURNISHED WITH COMMERCIAL QUALITY WASHERS.
 - THREAD UPPER 8" OF ANCHOR BOLTS AND GALVANIZE UPPER 12". THREAD LOWER 4" OF ANCHOR BOLT AND PLACE NUT WITH FLAT WASHER AT BOTTOM OF BOLT. TACK WELD NUT IN PLACE.
 - IF SOIL CONSISTS OF ORGANICS OR SATURATED SILT AND CLAY, CONTACT ENGINEER BEFORE PLACING FOUNDATION.
 - BONDING AND GROUNDING SHALL MEET THE NATIONAL ELECTRIC CODE AND NDOT STANDARDS. SEE POLE GROUNDING DETAIL ON NDOT STANDARD PLAN T-30.116.
 - STRUCTURAL BOLTS AND OTHER STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M 232 (ASTM A 153). EXPOSED PARTS OF ANCHOR BOLTS SHALL BE ZINC COATED OR OTHERWISE SUITABLY PROTECTED TO A MINIMUM OF 4" INTO THE CONCRETE.
 - ADD 1'-0" TO THE EMBEDMENT LENGTH WHEN SLOPE OF 3H:1V TO 1.5H:1V IS ENCOUNTERED NEAR THE PILE.



No.	DESCRIPTION	DATE
	ISSUE RECORD	

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

**80 FOOT CCTV
CAMERA ITS POLE
FOUNDATION DETAILS**

PRELIMINARY
SUBJECT TO REVISION
DECEMBER 2011

DESIGNED BY JL
DRAWN BY DJE
CHECKED BY PP
REVIEWED BY JAC

ATKINS
2270 Corporate Center Suite 100
Fremont, Nevada 89131
Phone: 702/251-7275
Fax: 702/251-7276



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: ITS POLE 80' COMMUNICATION
Note: A separate form is required for each standard detail.

Previously used: Contract Number: 180 FIBER UPGRADE Contract Sheet Numbers: _____
Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: GOOD USE FOR ALTERNATE COMM
POLE POSSIBLE URBAN USE
BRIDGE ACCEPTED

Requestor Information: Name: Thomas M... Phone: 129/4 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

Notes: _____

PRELIMINARY

SUBJECT TO REVISION
\$\$\$\$dne\$\$\$

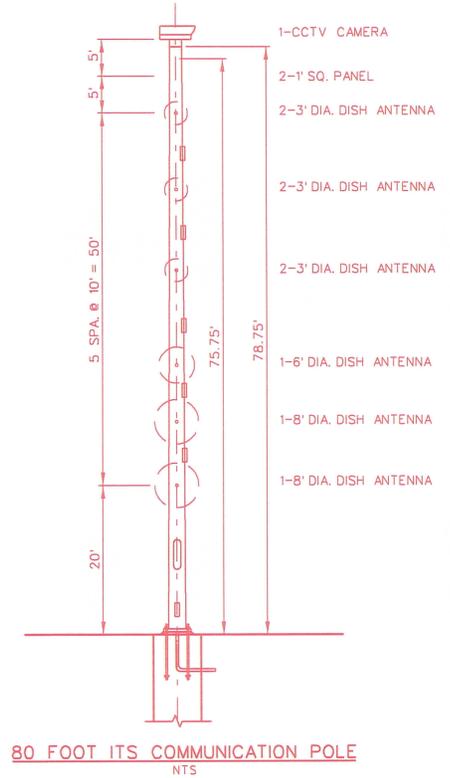
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

GENERAL NOTES:

- DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION 2009 WITH 2010 INTERIM REVISIONS.
- LOADING
 - IMPORTANCE FACTORS (if & lr): 1.0
 - DRAG COEFFICIENT (C): 0.45 - 2.0 DEPENDING ON SHAPE OF MEMBER AND WIND VELOCITY
 - MAXIMUM WIND LOAD: 23.4 psf * Cd * I
 - NATURAL WIND GUSTS: 5.2 psf * Cd * I
 - WIND SPEED: 90 MPH
 - ICE LOAD: 3 psf
 - FATIGUE CATEGORY: I
- SERVICEABILITY
 - MAXIMUM 1" DISPLACEMENT FOR 30MPH WIND SPEED.
- STRUCTURAL STEEL
 - POLE MATERIAL IS ASTM A572 GRADE 50 STEEL.
 - STEEL TUBING SHALL CONFORM TO ASTM A500, GRADE C.
 - HOT DIP GALVANIZE STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
 - HARDWARE SHALL BE GALVANIZED AS PER ASTM A153
- MATERIAL REQUIREMENTS
 - STRUCTURAL STEEL: Fy = 50 ksi
 - DRILLED SHAFT: F'c= 4000 psi
 - REINFORCING STEEL: ASTM A615 GRADE 60
 - ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION 2010 ARTICLE 5.10. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS.
 - ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.
- BOLTED CONNECTIONS.
 - ACCOMPLISH ALL STRUCTURAL HIGH STRENGTH BOLTING, EXCEPT ANCHOR BOLTS, USING AASHTO M164 BOLTS.
 - USE A HARDENED FLAT WASHER BETWEEN THE NUT AND THE CONNECTED PART.
 - USE HIGH STRENGTH BOLTS WITH DTI'S OR TENSION CONTROL INDICATORS. INSTALLED PER SUBSECTION 506.03.07 OF THE STANDARD SPECIFICATIONS.
 - FABRICATE ANCHOR BOLTS FROM MATERIAL CONFORMING TO ASTM F1554 GRADE 55.
 - HOT-DIP GALVANIZE ALL STEEL PARTS IN ACCORDANCE WITH ASTM A153 (AASHTO M232), EXCEPT AS SPECIFIED FOR HIGH STRENGTH BOLTING.
 - HIGH STRENGTH BOLTS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C, OR MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50. WASHERS, NUTS, AND BOLTS IN ANY ASSEMBLY SHALL BE GALVANIZED BY THE SAME PROCESS. DTI SHALL BE MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695. LUBRICATE THREADS WITH A DYED LUBRICANT.
- WELDED CONNECTIONS
 - WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED ON THE PLANS.
 - WELD IN ACCORDANCE WITH SECTION 506 OF THE STANDARD SPECIFICATIONS.
 - USE ONLY WELDERS QUALIFIED ACCORDING TO ANSI/AASHTO/AWS D1.1-2000, SECTION 4 FOR THE TYPE OF JOINT, ELECTRODE, POSITION OF THE JOINT, AND THE MATERIAL THICKNESS.
 - USE ONLY PREQUALIFIED JOINTS.
 - TEST ALL FULL PENETRATION GROOVE WELDS ULTRASONICALLY IN ACCORDANCE WITH SECTION 6, PART F OF ANSI/AASHTO/AWS D1.1-2000. ACCEPT OR REJECT EACH WELD DISCONTINUITY ON THE BASIS OF ITS INDICATION RATING AND ITS LENGTH IN ACCORDANCE WITH SECTION 9.3.
 - HAVE ALL FILLET WELDS VISUALLY INSPECTED BY QUALIFIED PERSONNEL. ANY WELDS FOUND TO HAVE INCOMPLETE FUSION, OVERLAP OR CRACKS WILL BE REJECTED.

- ROUTING
 - SHIM BASE PLATES TO FINISH ELEVATION AND COMPLETELY FILL PLATE AREA WITH A HIGH STRENGTH, NON-FERROUS, NON-SHRINK GROUT.
 - FORMULATE GROUT TO COMPLY WITH THE ASTM C1107.
 - TAPER ALL FINISHED SURFACES AT 45 DEGREE +/-.
- FOUNDATION: DRILLED SHAFT, SEE SHEET ITS47.
- GROUND ALL STRUCTURES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
- DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.

POLE ATTACHMENTS				
DESCRIPTION	QTY.	WEIGHT/EA (POUNDS)	EPA/EA (sq.ft)	HEIGHT ON POLE (ft)
CCTV	1	300	2.5	80
1' SQ. PANEL ANTENNA	2	14	1.7	75
3' ROUND DISH ANTENNA	2	100	12.0	70
3' ROUND DISH ANTENNA	2	100	12.0	60
3' ROUND DISH ANTENNA	2	100	12.0	50
6' ROUND DISH ANTENNA	1	200	48.1	40
8' ROUND DISH ANTENNA	1	300	85.5	30
8' ROUND DISH ANTENNA	1	300	85.5	20

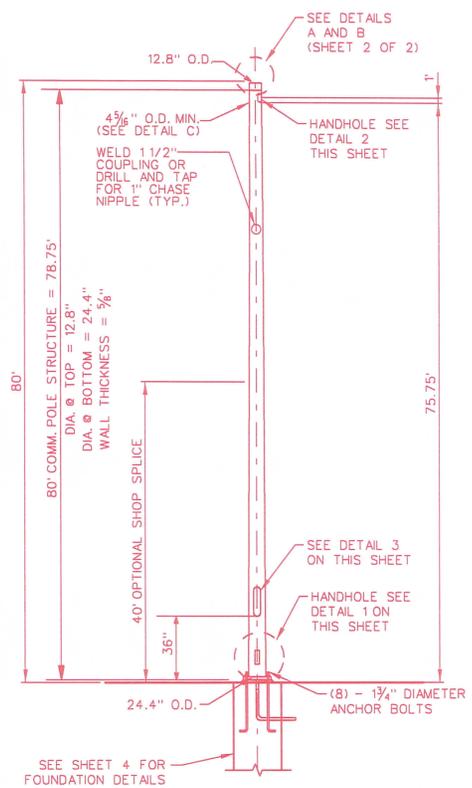


SHEET 1 OF 4

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

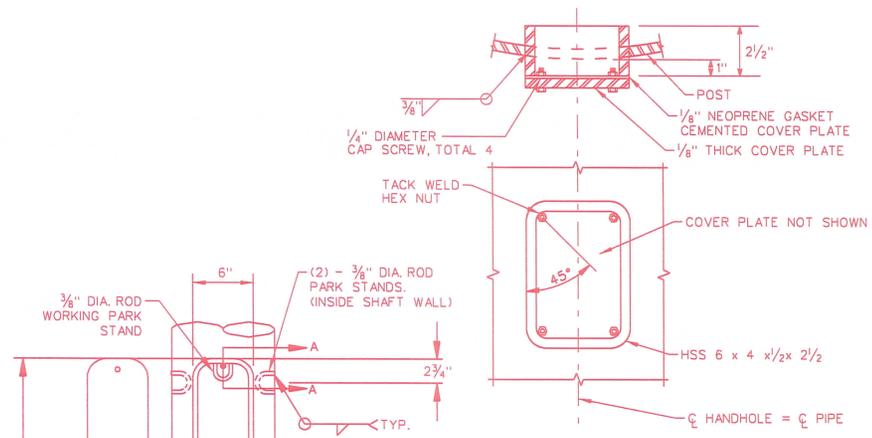
80 FOOT ITS
COMMUNICATION POLE

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

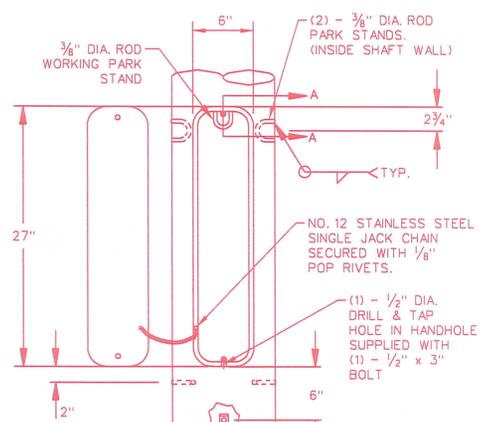


TYPICAL POLE ELEVATION
NTS

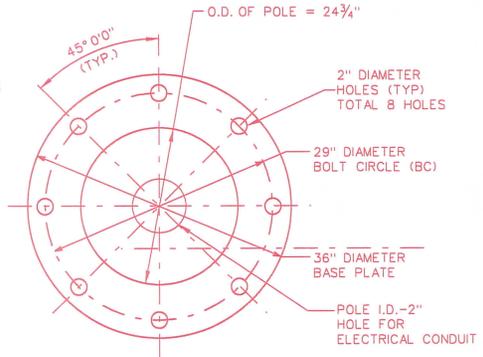
(ALL HEIGHTS ARE APPROXIMATE, ADJUST IN FIELD)



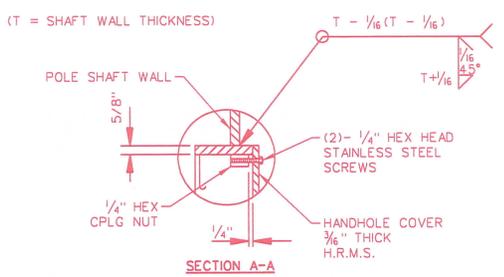
DETAIL 2
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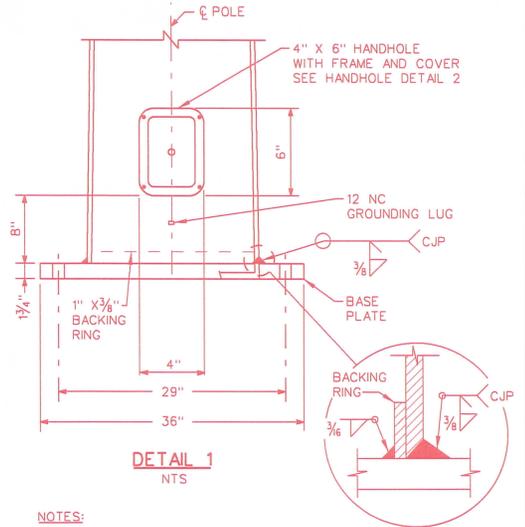
DETAIL 3
NTS



TYPICAL BASE PLATE PLAN
NTS



SECTION A-A



DETAIL 1
NTS

NOTES:

1. CCTV MOUNT ASSEMBLY TO BE INSTALLED AND MOUNTED PER MANUFACTURER'S SPECIFICATION.
2. WIRELESS ANTENNA ASSEMBLIES TO BE INSTALLED AND MOUNTED PER MANUFACTURER'S RECOMMENDATIONS.
3. SEE PLAN SHEETS AND NETWORK DIAGRAMS FOR INSTALLATION LOCATIONS AND EQUIPMENT TO BE INSTALLED AT EACH LOCATION.
4. INSTALL STEEL RAIN TIGHT REMOVABLE CAP ON TOP OF CCTV MOUNTING PLATE IF CCTV IS NOT SPECIFIED IN PLANS.
5. SWEEPS FOR CONDUIT SHALL NOT BE LESS THAN MINIMUM BENDING RADIUS OF FIBER.

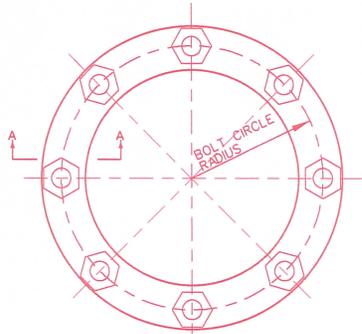
SHEET 2 OF 4

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
**80 FOOT ITS
COMMUNICATION POLE**

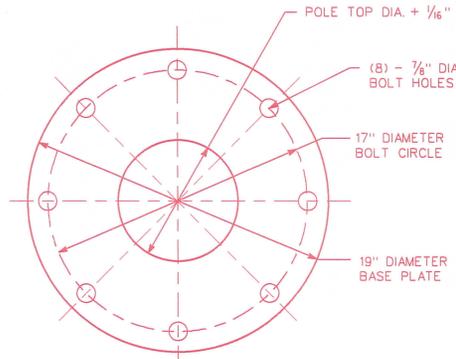
PRELIMINARY

SUBJECT TO REVISION
\$\$\$\$dgn\$\$\$

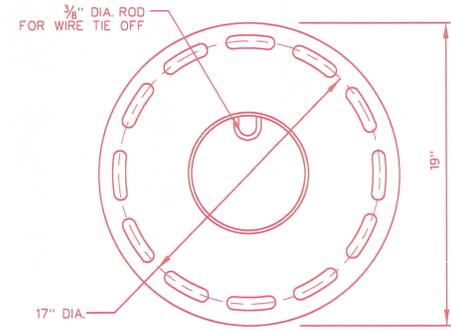
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			



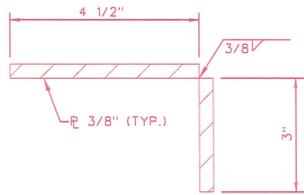
ANCHOR BOLT TEMPLATE



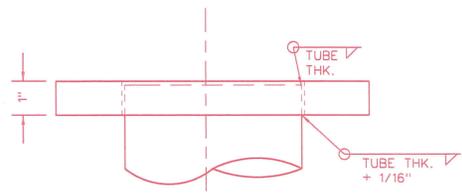
TOP VIEW



TOP VIEW

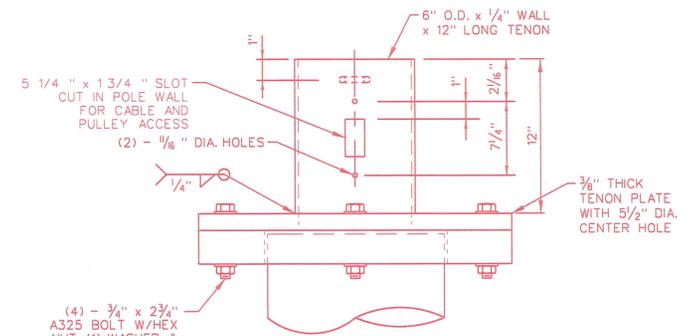


SECTION A-A



SIDE VIEW
TYPICAL CCTV POLE TOP MOUNT PLATE (FOR TENON MOUNT)
SEE DETAIL B

DETAIL A
NTS



(4) - 3/4" x 2 3/4" A325 BOLT W/HEX NUT, (1) WASHER, & (1) LOCK WASHER

SIDE VIEW
TYPICAL TENON DETAIL
(VARIES BY MANUFACTURER)

DETAIL B
NTS

SHEET 3 OF 4

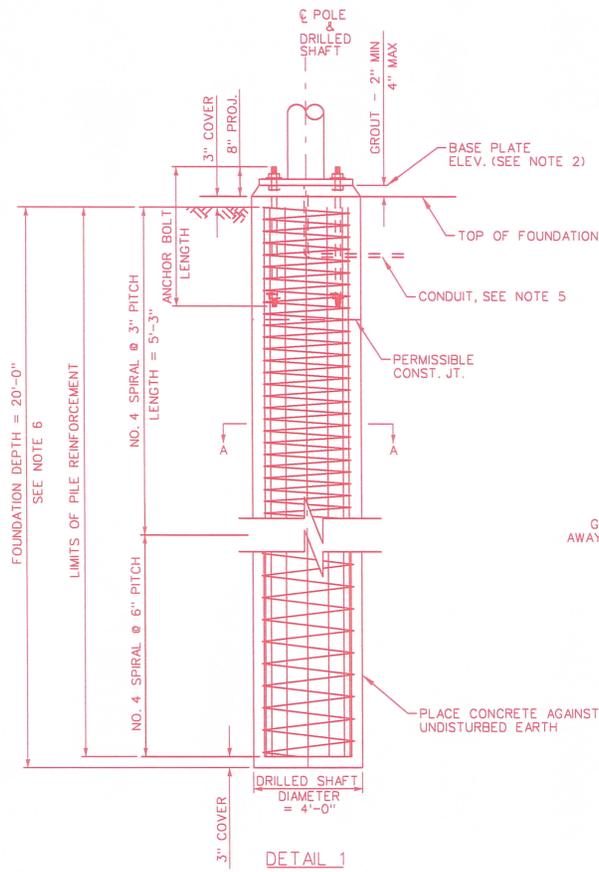
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

80 FOOT ITS
COMMUNICATION POLE

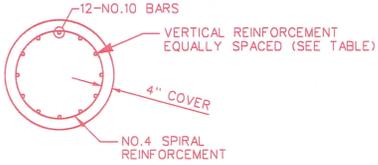
NOTE:
CONTRACTOR SHALL COORDINATE WITH CCTV LOWERING DEVICE VENDOR FOR LOWERING DEVICE MOUNTING REQUIREMENTS BEFORE CCTV POLE FABRICATION

PRELIMINARY
SUBJECT TO REVISION
\$\$\$\$\$date\$\$\$\$\$

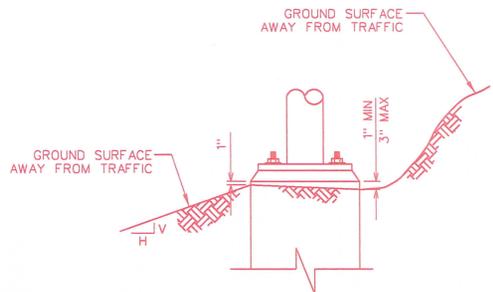
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			



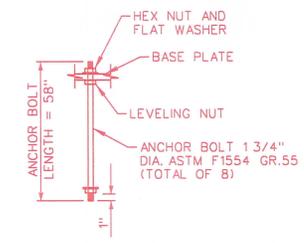
DETAIL 1



SECTION A-A



DETAIL 2



DETAIL 3
ANCHOR BOLT DETAIL
(SEE NOTE 9)

ITS POLE	ANCHOR BOLTS DIA.	ANCHOR BOLT LENGTH	VERTICAL REINFORCING STEEL	DRILLED SHAFT DIAMETER	FOUNDATION DEPTH
80'	1 3/4"	58"	12 - NO. 10	48"	20'

NOTES:

- FOR ANCHOR BOLT LAYOUT, REFER TO POLE MANUFACTURER'S SPECIFICATIONS.
- CONFIRM BASE PLATE ELEVATION WITH ENGINEER PRIOR TO POURING OF FOUNDATION.
- DRILLED SHAFT SHALL BE CONSTRUCTED ACCORDING TO SECTION 509 OF THE STANDARD SPECIFICATIONS.
- PILE SHALL BE FORMED 6" MIN. BELOW GROUND SURFACE. REMAINDER TO BE PLACED AGAINST UNDISTURBED MATERIAL.
- FOR NUMBER AND SIZE OF CONDUIT IN FOUNDATION, SEE ELECTRICAL PLAN SHEETS, UNLESS NOTED OTHERWISE.
- DEPTH OF FOUNDATION (DRILLED SHAFT) WILL BE MEASURED FROM THE LOWEST POINT ON FINISHED GRADE AND LENGTH OF PILE WILL CHANGE ACCORDINGLY.
- TERMINATE NO. 4 SPIRAL REINFORCEMENT WITH 135 DEGREE HOOK AROUND MAIN VERTICAL REINFORCEMENT.
- ALL ANCHOR BOLTS AND NUTS SHALL CONFORM TO THE SPECIFICATIONS ASTM DESIGNATION F1554 GR.55 AND SHALL BE FURNISHED WITH COMMERCIAL QUALITY WASHERS.
- THREAD UPPER 8" OF ANCHOR BOLTS AND GALVANIZE ENTIRE BOLT IN ACCORDANCE WITH ASTM A153 (AASHTO M232).
- BEFORE PLACING THE FOUNDATION, CONTACT THE NDOT GEOTECHNICAL ENGINEERING SECTION FOR FURTHER INVESTIGATION WHEN THE FOLLOWING SOIL CONDITIONS ARE ENCOUNTERED: (A) SOILS WITH HIGH ORGANIC CONTENT; (B) THE SITE CANNOT SUPPORT THE DRILL RIG; OR (C) FIRM BEDROCK IS ENCOUNTERED.
- BONDING AND GROUNDING SHALL MEET THE NATIONAL ELECTRIC CODE AND NDOT STANDARDS. SEE POLE GROUNDING DETAIL ON NDOT STANDARD PLAN T-30.1.16.
- STRUCTURAL BOLTS AND OTHER STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 (AASHTO M232).

SHEET 4 OF 4

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

80 FOOT ITS
COMMUNICATION POLE

GENERAL NOTES:

1. DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION 2009 WITH 2010 INTERIM REVISIONS AND TELECOMMUNICATIONS INDUSTRY ASSOCIATION(TIA) STANDARD: STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, 2005 (ANSI/TIA-222-G-2005) WITH 2007 ADDENDUM 1 AND 2009 ADDENDUM 2.

2. LOADING
 A. IMPORTANCE FACTORS (I_f & I_r): 1.0
 B. DRAG COEFFICIENT (C): 0.45 - 2.0 DEPENDING ON SHAPE OF MEMBER AND WIND VELOCITY
 C. MAXIMUM WIND LOAD: 23.4 psf * Cd * I
 D. NATURAL WIND GUSTS: 5.2 psf * Cd * I
 E. WIND SPEED: 90 MPH
 F. ICE LOAD: 3 psf

3. SERVICEABILITY
 TWIST AND SWAY DEFORMATION LIMITS SHALL BE 0.25 DEGREES WITH A 60MPH BASIC WIND SPEED PER ANSI/TIA-222-G-2005

4. STRUCTURAL STEEL
 A. POLE MATERIAL IS ASTM A572 GRADE 50 STEEL.
 B. STEEL TUBING SHALL CONFORM TO ASTM A500, GRADE C.
 C. HOT DIP GALVANIZE STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
 D. HARDWARE SHALL BE GALVANIZED AS PER ASTM A153

5. MATERIAL REQUIREMENTS
 A. STRUCTURAL STEEL : F_y = 50 ksi
 B. DRILLED SHAFT-CONCRETE CLASS S F'_c= 4000 psi
 C. REINFORCING STEEL : ASTM A615 GRADE 60
 ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION 2010 ARTICLE 5.10. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.

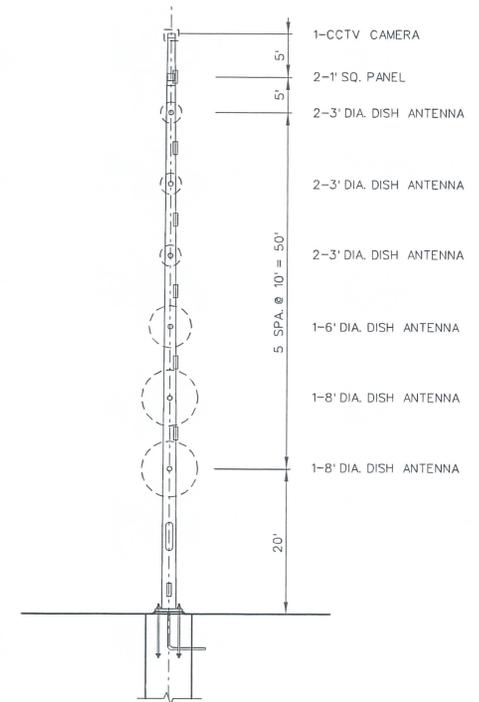
6. BOLTED CONNECTIONS.
 A. ACCOMPLISH ALL STRUCTURAL HIGH STRENGTH BOLTING, EXCEPT ANCHOR BOLTS, USING AASHTO M164 BOLTS.
 B. USE A HARDENED FLAT WASHER BETWEEN THE NUT AND THE CONNECTED PART.
 C. USE HIGH STRENGTH BOLTS WITH DT'S OR TENSION CONTROL INDICATORS INSTALLED PER SUBSECTION 506.03.07 OF THE STANDARD SPECIFICATIONS.
 D. FABRICATE ANCHOR BOLTS FROM MATERIAL CONFORMING TO ASTM F1554 GRADE 55.
 E. HOT-DIP GALVANIZE ALL STEEL PARTS IN ACCORDANCE WITH ASTM A153, EXCEPT AS SHOWN FOR ONLY THE TOP 12" FOR ANCHOR BOLTS, AND AS SPECIFIED FOR HIGH STRENGTH BOLTING.
 F. HIGH STRENGTH BOLTS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C, OR MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50. WASHERS, NUTS, AND BOLTS IN ANY ASSEMBLY SHALL BE GALVANIZED BY THE SAME PROCESS. LUBRICATE THREADS WITH A DYED LUBRICANT.

7. WELDED CONNECTIONS
 A. WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED ON THE PLANS.
 B. WELD IN ACCORDANCE WITH SECTION 506 OF THE STANDARD SPECIFICATIONS.
 C. USE ONLY WELDERS QUALIFIED ACCORDING TO ANSI/AASHTO/AWS D1.1-2000, SECTION 4 FOR THE TYPE OF JOINT, ELECTRODE, POSITION OF THE JOINT, AND THE MATERIAL THICKNESS.
 D. USE ONLY PREQUALIFIED JOINTS.
 E. TEST ALL FULL PENETRATION GROOVE WELDS ULTRASONICALLY IN ACCORDANCE WITH SECTION 6, PART F OF ANSI/AASHTO/AWS D1.1-2000. ACCEPT OR REJECT EACH WELD DISCONTINUITY ON THE BASIS OF ITS INDICATION RATING AND ITS LENGTH IN ACCORDANCE WITH SECTION 9.3.
 F. HAVE ALL FILLET WELDS VISUALLY INSPECTED BY QUALIFIED PERSONNEL. ANY WELDS FOUND TO HAVE INCOMPLETE FUSION, OVERLAP OR CRACKS WILL BE REJECTED.

8. GROUTING
 A. SHIM BASE PLATES TO FINISH ELEVATION AND COMPLETELY FILL PLATE AREA WITH A HIGH STRENGTH, NON-FERROUS, NON-SHRINK GROUT.
 B. FORMULATE GROUT TO COMPLY WITH THE ASTM C107.
 C. TAPER ALL FINISHED SURFACES AT 45 DEGREE +/-.
9. FOUNDATION: DRILLED SHAFT
10. GROUND ALL STRUCTURES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
11. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.

POLE ATTACHMENTS				
DESCRIPTION	QTY.	WEIGHT/EA (POUNDS)	EPA/EA (sq.ft)	HEIGHT ON POLE (ft)
CCTV	1	300	2.5	80
1 SQ. PANEL ANTENNA	2	14	1.7	75
3' ROUND DISH ANTENNA	2	100	12.0	70
3' ROUND DISH ANTENNA	2	100	12.0	60
3' ROUND DISH ANTENNA	2	100	12.0	50
6' ROUND DISH ANTENNA	1	200	48.1	40
8' ROUND DISH ANTENNA	1	300	85.5	30
8' ROUND DISH ANTENNA	1	300	85.5	20

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			1

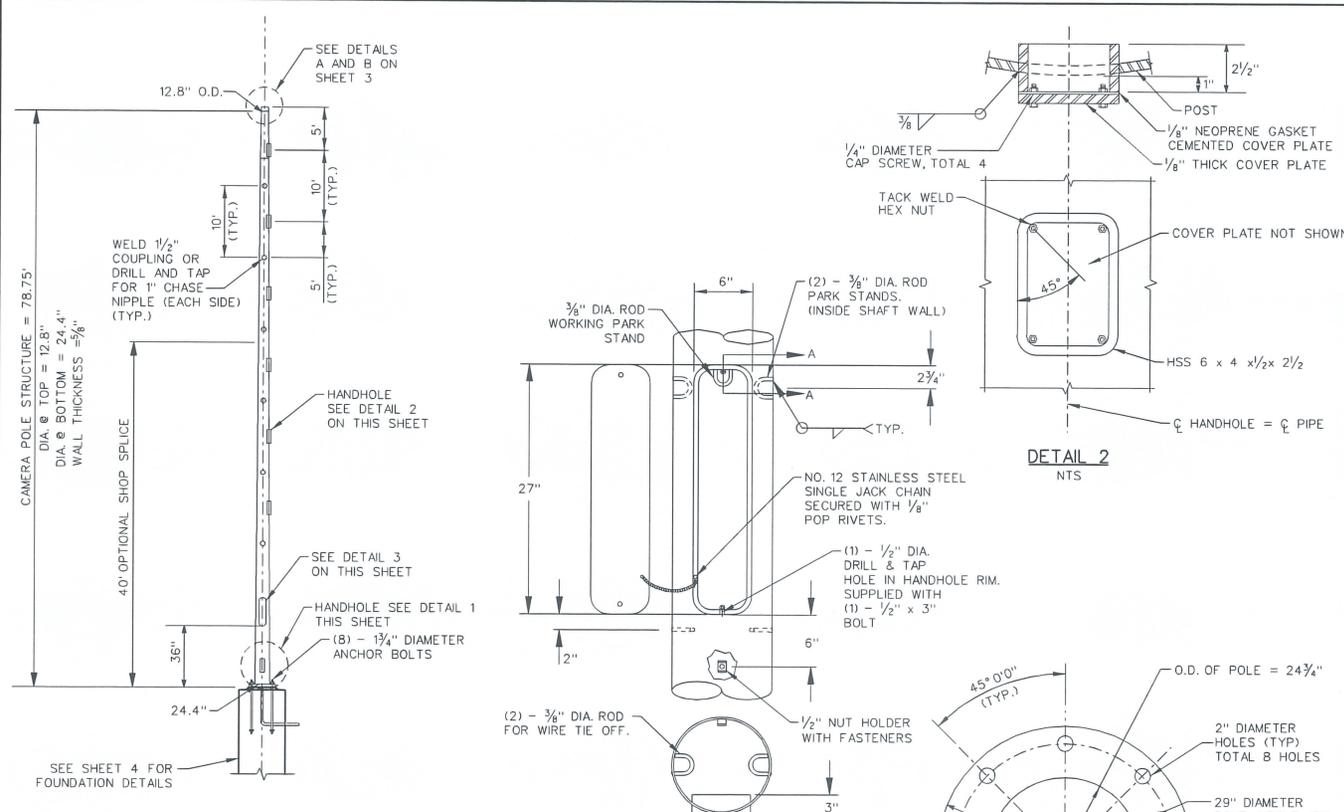


80 FOOT COMMUNICATION ANTENNA POLE
 NTS

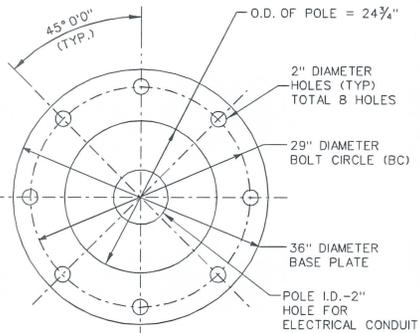
No.	DESCRIPTION	DATE
	ISSUE RECORD	

PRELIMINARY SUBJECT TO REVISION DECEMBER 2011	STATE OF NEVADA DEPARTMENT OF TRANSPORTATION 80 FOOT COMMUNICATION ANTENNA POLE	DESIGNED BY: JAC DRAWN BY: DJE CHECKED BY: PP REVIEWED BY: JAC
	ATKINS <small>2220 Corporate Center, Suite 100 Henderson, Nevada 89124 Phone: 702.942.1274 Fax: 702.942.1220</small>	

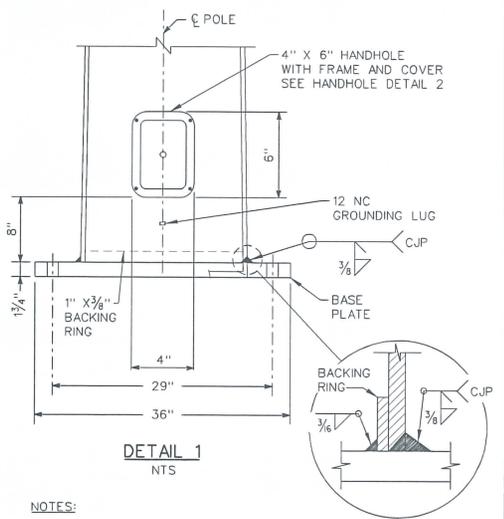
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			2



TYPICAL POLE ELEVATION
NTS
(ALL HEIGHTS ARE APPROXIMATE, ADJUST IN FIELD)



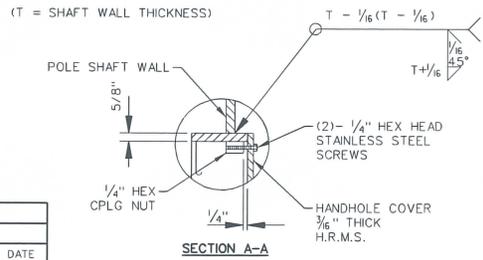
TYPICAL BASE PLATE PLAN
NTS



DETAIL 1
NTS

NOTES:

1. CCTV MOUNT ASSEMBLY TO BE INSTALLED AND MOUNTED PER MANUFACTURER'S SPECIFICATION.
2. DISH ANTENNA ASSEMBLIES TO BE INSTALLED AND MOUNTED PER MANUFACTURER'S RECOMMENDATIONS.
3. POLE MATERIAL IS ASTM A572 GRADE 50 STEEL. STRUCTURAL STEEL SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
4. SEE PLAN SHEETS AND NETWORK DIAGRAMS FOR INSTALLATION LOCATIONS AND EQUIPMENT TO BE INSTALLED AT EACH LOCATION.
5. INSTALL STEEL RAIN TIGHT REMOVABLE CAP ON TOP OF CCTV MOUNTING PLATE IF CCTV IS NOT SPECIFIED IN PLANS.
6. SWEEPS FOR CONDUIT SHALL NOT BE LESS THAN MINIMUM BENDING RADIUS OF FIBER.

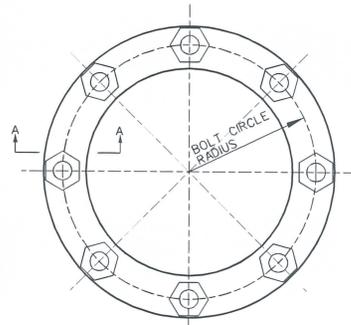


SECTION A-A

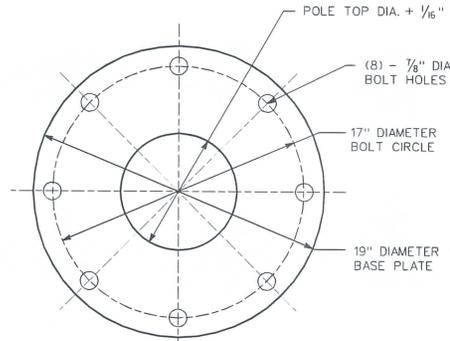
No.	DESCRIPTION	DATE
	ISSUE RECORD	

<p>PRELIMINARY SUBJECT TO REVISION DECEMBER 2011</p>	<p>STATE OF NEVADA DEPARTMENT OF TRANSPORTATION</p> <p>80 FOOT COMMUNICATION ANTENNA POLE DETAILS 1 OF 2</p>	<p>DESIGNED BY: JL</p> <p>DRAWN BY: DJE</p> <p>CHECKED BY: PP</p> <p>REVIEWED BY: JAC</p>
	<p>ATKINS</p> <p><small>2330 Corporate Oaks, Suite 505 Boulder, Colorado 80502 Telephone: 703.084.1275 Fax: 703.251.7200</small></p>	

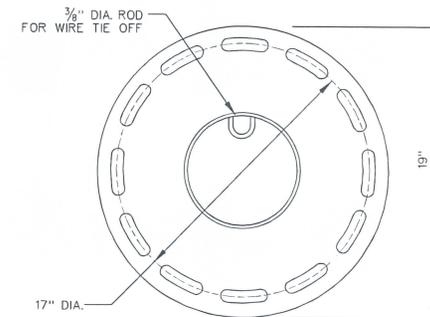
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			3



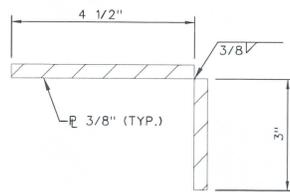
ANCHOR BOLT TEMPLATE



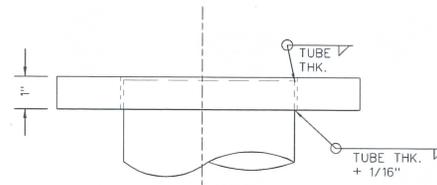
TOP VIEW



TOP VIEW

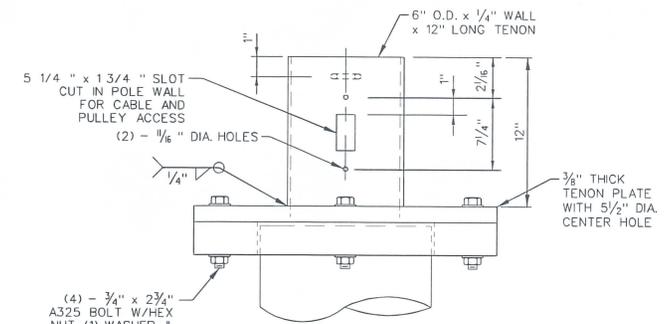


SECTION A-A



SIDE VIEW
TYPICAL CCTV POLE TOP MOUNT PLATE (FOR TENON MOUNT)
SEE DETAIL B

DETAIL A
NTS



SIDE VIEW
TYPICAL TENON DETAIL
(VARIES BY MANUFACTURER)

DETAIL B
NTS

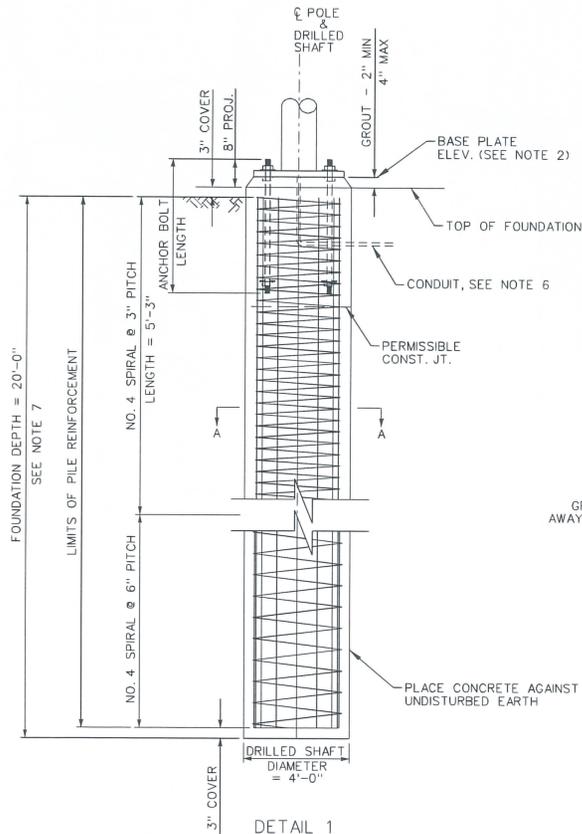
NOTE:
CONTRACTOR SHALL COORDINATE WITH CCTV LOWERING DEVICE VENDOR FOR LOWERING DEVICE MOUNTING REQUIREMENTS BEFORE CCTV POLE FABRICATION

No.	DESCRIPTION	DATE
	ISSUE RECORD	

PRELIMINARY SUBJECT TO REVISION DECEMBER 2011	STATE OF NEVADA DEPARTMENT OF TRANSPORTATION
	80 FOOT COMMUNICATION ANTENNA POLE DETAILS 2 OF 2
DESIGNED BY <u>JL</u>	DRAWN BY <u>DJE</u>
CHECKED BY <u>PP</u>	REVIEWED BY <u>JAC</u>

ATKINS
2270 Corporate Circle, Suite 100
Fremont, Nevada 89414
Telephone: 702/263-1275
Fax: 702/263-1220

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			4



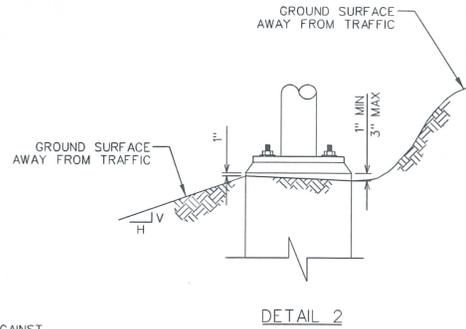
SOILS CONDITIONS					
SITE FOUNDATION MATERIAL	MINIMUM DRY UNIT WEIGHT (pcf)	INTERNAL FRICTION ANGLE (DEG)	P-Y MODULUS k _v (lb/in ³)	COHESION (psf)	STRAIN E ₅₀
CLAY	100	N/A	N/A	1000	0.007
SAND	100	30(35*)	25	N/A	N/A

* IN CASE THE SLOPE OF 2H:1V TO 1.5H:1V

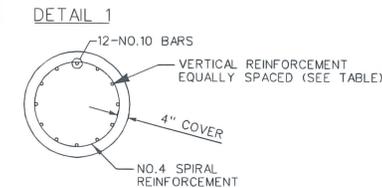
ITS POLE	ANCHOR BOLTS DIA.	ANCHOR BOLT LENGTH	VERTICAL REINFORCING STEEL	DRILLED SHAFT DIAMETER	FOUNDATION DEPTH
80'	1 3/4"	58"	12 - NO. 10	48"	20'

NOTES:

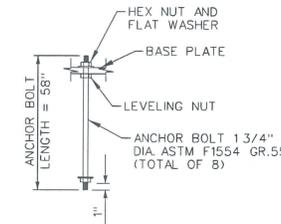
- FOR ANCHOR BOLT LAYOUT SEE SHEET 2.
- CONFIRM BASE PLATE ELEVATION WITH ENGINEER PRIOR TO POURING OF FOUNDATION.
- DRILLED SHAFT SHALL BE CLASS "S" PCC AS SPECIFIED IN THE SPECIAL PROVISIONS.
- PRIOR TO ERECTION OF THE POLE, BACKFILL WHICH IS EQUIVALENT TO THE SURROUNDING MATERIAL SHALL BE IN PLACE AND COMPACTED ACCORDING TO CONTRACT STANDARDS.
- PILE SHALL BE FORMED 6" MIN. BELOW GROUND SURFACE. REMAINDER TO BE PLACED AGAINST UNDISTURBED MATERIAL.
- FOR NUMBER AND SIZE OF CONDUIT IN FOUNDATION, SEE ELECTRICAL PLAN SHEETS.
- DEPTH OF FOUNDATION (DRILLED SHAFT) WILL BE MEASURED FROM THE LOWEST POINT ON FINISHED GRADE AND LENGTH OF PILE WILL CHANGE ACCORDINGLY.
- TERMINATE NO. 4 SPIRAL REINFORCEMENT WITH 135 DEGREE HOOK AROUND MAIN VERTICAL REINFORCEMENT.
- ALL ANCHOR BOLTS AND NUTS SHALL CONFORM TO THE SPECIFICATIONS ASTM DESIGNATION F1554 GR.55 AND SHALL BE FURNISHED WITH COMMERCIAL QUALITY WASHERS.
- THREAD UPPER 8" OF ANCHOR BOLTS AND GALVANIZE UPPER 12". THREAD LOWER 4" OF ANCHOR BOLT AND PLACE NUT WITH FLAT WASHER AT BOTTOM OF BOLT. TACK WELD NUT IN PLACE.
- IF SOIL CONSISTS OF ORGANICS OR SATURATED SILT AND CLAY, CONTACT ENGINEER BEFORE PLACING FOUNDATION.
- BONDING AND GROUNDING SHALL MEET THE NATIONAL ELECTRIC CODE AND NDOT STANDARDS. SEE POLE GROUNDING DETAIL ON NDOT STANDARD PLAN T-30.116.
- STRUCTURAL BOLTS AND OTHER STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M 232 (ASTM A 153). EXPOSED PARTS OF ANCHOR BOLTS SHALL BE ZINC COATED OR OTHERWISE SUITABLY PROTECTED TO A MINIMUM OF 4" INTO THE CONCRETE.



DETAIL 2



SECTION A-A



DETAIL 3
ANCHOR BOLT DETAIL
(SEE NOTE 10)

No.	DESCRIPTION	DATE
	ISSUE RECORD	

PRELIMINARY SUBJECT TO REVISION DECEMBER 2011	STATE OF NEVADA DEPARTMENT OF TRANSPORTATION
	80 FOOT COMMUNICATION ANTENNA POLE FOUNDATION DETAILS
DESIGNED BY JL	DRAWN BY DJE
CHECKED BY PP	REVIEWED BY JAC



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: ITS POLE 55' CCTV

Note: A separate form is required for each standard detail.

Previously used: Contract Number: I80 FIBER UPGRADE Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: DEPENDS ON USE. THIS MET FAA
REQUIREMENTS AND OR VIEW SHED
DUE TO ENVIRONMENTAL IMPACTS
BRIDGE ACCEPTED

Requestor Information: Name: [Signature] Phone: ~~1379~~ 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

Notes: _____

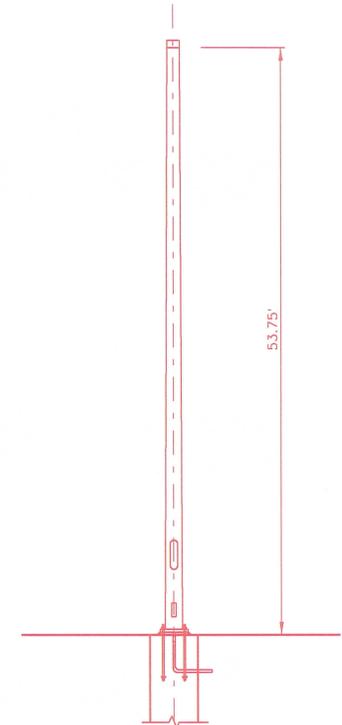
PRELIMINARY

SUBJECT TO REVISION
SSSSSSSSSS

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

GENERAL NOTES:

1. DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION 2009 WITH 2010 INTERIM REVISIONS.
2. LOADING
 - A. IMPORTANCE FACTORS (I_f & I_r): 1.0
 - B. DRAG COEFFICIENT (C_d): 0.45 - 2.0 DEPENDING ON SHAPE OF MEMBER AND WIND VELOCITY
 - C. MAXIMUM WIND LOAD: 23.4 psf * C_d * I
 - D. NATURAL WIND GUSTS: 5.2 psf * C_d * I
 - E. WIND SPEED: 90 MPH
 - F. ICE LOAD: 3 psf
3. SERVICEABILITY
MAXIMUM 1" DISPLACEMENT FOR 30MPH WIND SPEED.
4. STRUCTURAL STEEL
 - A. POLE MATERIAL IS ASTM A36 STEEL.
 - B. STEEL TUBING SHALL CONFORM TO ASTM A500, GRADE C.
 - C. HOT DIP GALVANIZE STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
 - D. HARDWARE SHALL BE GALVANIZED AS PER ASTM A153
5. MATERIAL REQUIREMENTS
 - A. STRUCTURAL STEEL: $F_y = 36$ ksi
 - B. DRILLED SHAFT: $F'_c = 4000$ psi
 - C. REINFORCING STEEL: ASTM A615 GRADE 60
ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION 2010 ARTICLE 5.10. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.
6. BOLTED CONNECTIONS.
 - A. ACCOMPLISH ALL STRUCTURAL HIGH STRENGTH BOLTING, EXCEPT ANCHOR BOLTS, USING AASHTO M164 BOLTS.
 - B. USE A HARDENED FLAT WASHER BETWEEN THE NUT AND THE CONNECTED PART.
 - C. USE HIGH STRENGTH BOLTS WITH DTI'S OR TENSION CONTROL INDICATORS INSTALLED PER SUBSECTION 506.03.07 OF THE STANDARD SPECIFICATIONS.
 - D. FABRICATE ANCHOR BOLTS FROM MATERIAL CONFORMING TO ASTM F1554 GRADE 36.
 - E. HOT-DIP GALVANIZE ALL STEEL PARTS IN ACCORDANCE WITH ASTM A153 (AASHTO M232), EXCEPT AS SHOWN FOR ONLY THE TOP 12" FOR ANCHOR BOLTS, AND AS SPECIFIED FOR HIGH STRENGTH BOLTING.
 - F. HIGH STRENGTH BOLTS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C, OR MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50. WASHERS, NUTS, AND BOLTS IN ANY ASSEMBLY SHALL BE GALVANIZED BY THE SAME PROCESS. DTI SHALL BE MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695. LUBRICATE THREADS WITH A DYED LUBRICANT.
7. WELDED CONNECTIONS
 - A. WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED ON THE PLANS.
 - B. WELD IN ACCORDANCE WITH SECTION 506 OF THE STANDARD SPECIFICATIONS.
 - C. USE ONLY WELDERS QUALIFIED ACCORDING TO ANSI/AASHTO/AWS D1.1-2000, SECTION 4 FOR THE TYPE OF JOINT, ELECTRODE, POSITION OF THE JOINT, AND THE MATERIAL THICKNESS.
 - D. USE ONLY PREQUALIFIED JOINTS.
 - E. TEST ALL FULL PENETRATION GROOVE WELDS ULTRASONICALLY IN ACCORDANCE WITH SECTION 6, PART F OF ANSI/AASHTO/AWS D1.1-2000. ACCEPT OR REJECT EACH WELD DISCONTINUITY ON THE BASIS OF ITS INDICATION RATING AND ITS LENGTH IN ACCORDANCE WITH SECTION 9.3.
 - F. HAVE ALL FILLET WELDS VISUALLY INSPECTED BY QUALIFIED PERSONNEL. ANY WELDS FOUND TO HAVE INCOMPLETE FUSION, OVERLAP OR CRACKS WILL BE REJECTED.
8. GROUTING
 - A. SHIM BASE PLATES TO FINISH ELEVATION AND COMPLETELY FILL PLATE AREA WITH A HIGH STRENGTH, NON-FERROUS, NON-SHRINK GROUT.
 - B. FORMULATE GROUT TO COMPLY WITH THE ASTM C1107.
 - C. TAPER ALL FINISHED SURFACES AT 45 DEGREE +/-.
9. FOUNDATION: DRILLED SHAFT.
10. GROUND ALL STRUCTURES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
11. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.



55 FOOT ITS POLE
NTS

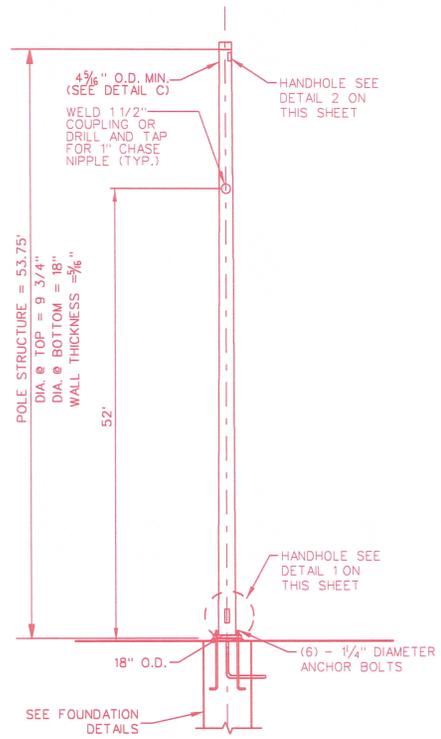
SHEET 1 OF 4

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

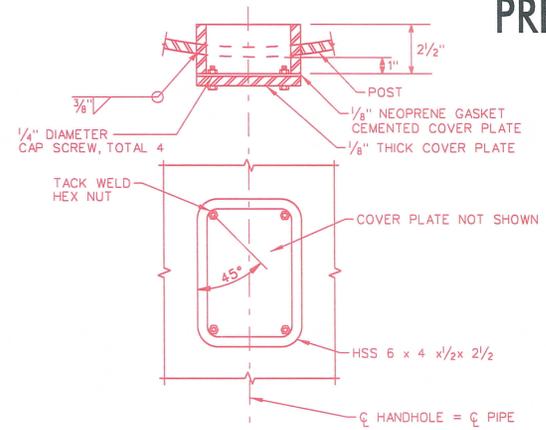
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STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

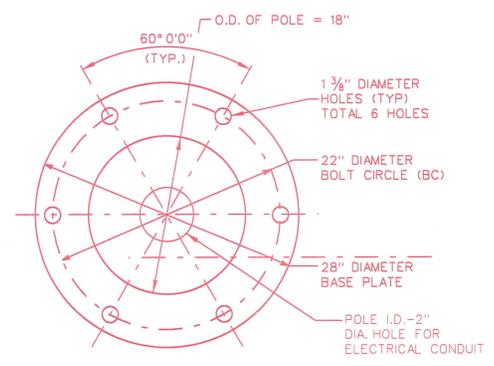
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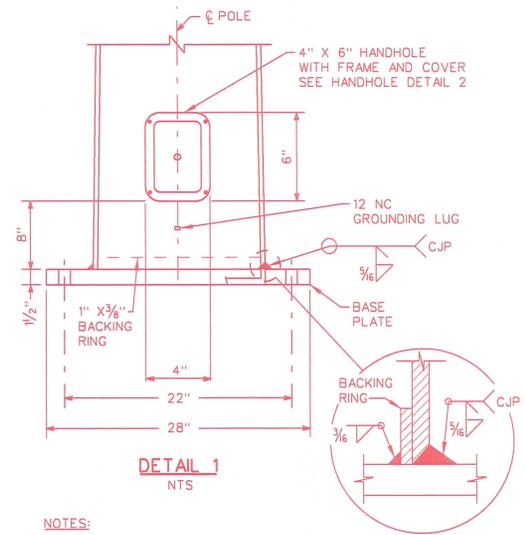
TYPICAL POLE ELEVATION
NTS
(ALL HEIGHTS ARE APPROXIMATE, ADJUST IN FIELD)



DETAIL 2
NTS



TYPICAL BASE PLATE PLAN
NTS



DETAIL 1
NTS

- NOTES:**
1. DEVICE MOUNT ASSEMBLIES TO BE INSTALLED AND MOUNTED PER MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
 2. SEE PLAN SHEETS AND NETWORK DIAGRAMS FOR INSTALLATION LOCATIONS AND EQUIPMENT TO BE INSTALLED.
 3. INSTALL STEEL RAIN TIGHT REMOVABLE CAP ON TOP OF POLE IF POLE TOP DEVICE IS NOT SPECIFIED IN PLANS.
 4. SWEEPS FOR CONDUIT SHALL NOT BE LESS THAN MINIMUM BENDING RADIUS OF FIBER.
 5. IF VID IS NOT SPECIFIED IN PLANS, DO NOT INSTALL MAST ARM AND INSTALL STEEL RAIN TIGHT REMOVABLE PLATE OVER MAST ARM CONNECTION.

SHEET 2 OF 4

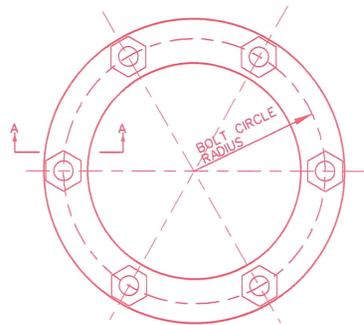
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

55 FOOT ITS POLE

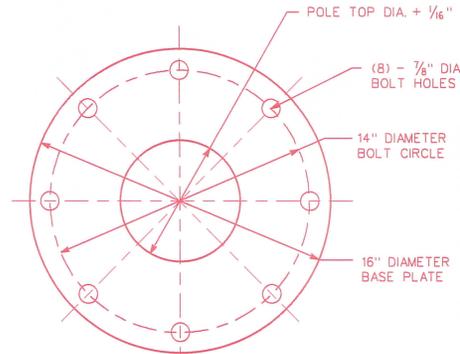
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SUBJECT TO REVISION
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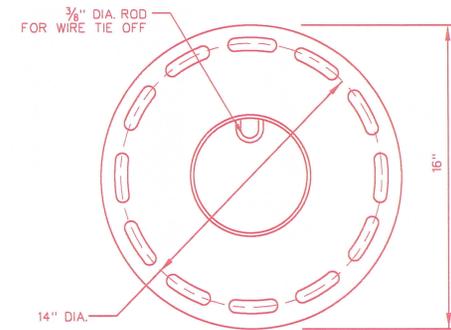
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NEVADA			



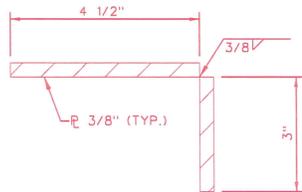
ANCHOR BOLT TEMPLATE



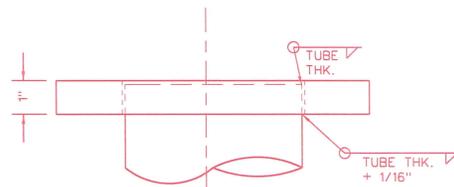
TOP VIEW



TOP VIEW

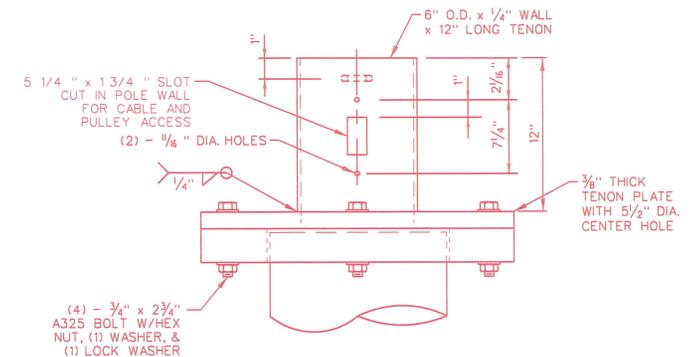


SECTION A-A



SIDE VIEW
TYPICAL CCTV POLE TOP MOUNT PLATE (FOR TENON MOUNT)
SEE DETAIL B

DETAIL A
NTS



SIDE VIEW
TYPICAL TENON DETAIL
(VARIES BY MANUFACTURER)

DETAIL B
NTS

SHEET 3 OF 4

NOTE:
CONTRACTOR SHALL COORDINATE WITH CCTV
LOWERING DEVICE VENDOR FOR LOWERING
DEVICE MOUNTING REQUIREMENTS BEFORE
CCTV POLE FABRICATION

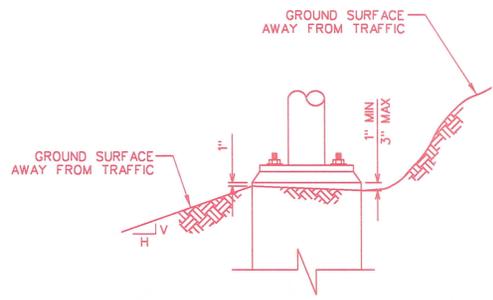
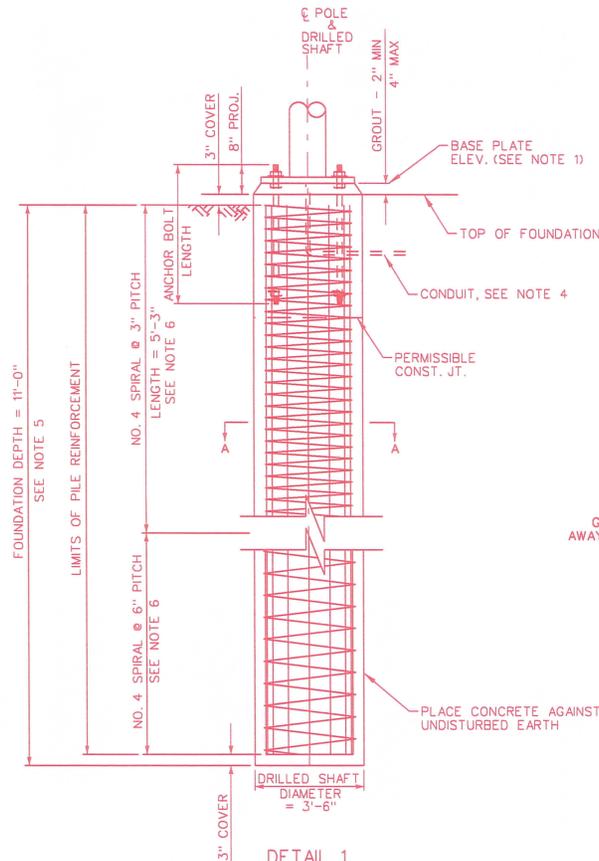
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

55 FOOT ITS POLE

PRELIMINARY

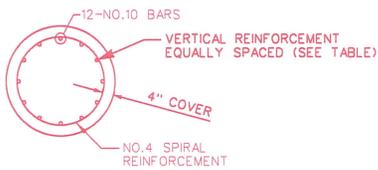
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STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

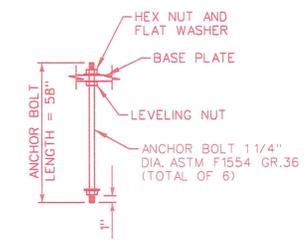


DETAIL 2

DETAIL 1



SECTION A-A



DETAIL 3
ANCHOR BOLT DETAIL
(SEE NOTE 8)

ITS POLE	ANCHOR BOLTS DIA.	ANCHOR BOLT LENGTH	VERTICAL REINFORCING STEEL	DRILLED SHAFT DIAMETER	FOUNDATION DEPTH
55'	1 1/4"	58"	12 - NO. 10	42"	11'

NOTES:

1. CONFIRM BASE PLATE ELEVATION WITH ENGINEER PRIOR TO POURING OF FOUNDATION.
2. DRILLED SHAFT SHALL BE CONSTRUCTED ACCORDING TO SECTION 509 OF THE STANDARD SPECIFICATIONS.
3. PILE SHALL BE FORMED 6" MIN. BELOW GROUND SURFACE. REMAINDER TO BE PLACED AGAINST UNDISTURBED MATERIAL.
4. FOR NUMBER AND SIZE OF CONDUIT IN FOUNDATION, SEE ELECTRICAL PLAN SHEETS, UNLESS NOTED OTHERWISE.
5. DEPTH OF FOUNDATION (DRILLED SHAFT) WILL BE MEASURED FROM THE LOWEST POINT ON FINISHED GRADE AND LENGTH OF PILE WILL CHANGE ACCORDINGLY.
6. TERMINATE NO. 4 SPIRAL REINFORCEMENT WITH 135 DEGREE HOOK AROUND MAIN VERTICAL REINFORCEMENT.
7. ALL ANCHOR BOLTS AND NUTS SHALL CONFORM TO THE SPECIFICATIONS ASTM DESIGNATION F1554 GR.55 AND SHALL BE FURNISHED WITH COMMERCIAL QUALITY WASHERS.
8. THREAD UPPER 8" OF ANCHOR BOLTS AND GALVANIZE ENTIRE BOLT IN ACCORDANCE WITH ASTM A153 (AASHTO M232).
9. BEFORE PLACING THE FOUNDATION, CONTACT THE NDOT GEOTECHNICAL ENGINEERING SECTION FOR FURTHER INVESTIGATION WHEN THE FOLLOWING SOIL CONDITIONS ARE ENCOUNTERED: (A) SOILS WITH HIGH ORGANIC CONTENT; (B) THE SITE CANNOT SUPPORT THE DRILL RIG; OR (C) FIRM BEDROCK IS ENCOUNTERED.
10. BONDING AND GROUNDING SHALL MEET THE NATIONAL ELECTRIC CODE AND NDOT STANDARDS. SEE POLE GROUNDING DETAIL ON NDOT STANDARD PLAN T-30.1.16.
11. STRUCTURAL BOLTS AND OTHER STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 (AASHTO M232).

SHEET 4 OF 4

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

55 FOOT ITS POLE

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			1

GENERAL NOTES:

1. DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION 2009 WITH 2010 INTERIM REVISIONS.

2. LOADING
 A. IMPORTANCE FACTORS (If & Ir): 1.0
 B. DRAG COEFFICIENT (C_d): 0.45 - 2.0 DEPENDING ON SHAPE OF MEMBER AND WIND VELOCITY
 C. MAXIMUM WIND LOAD: 23.4 psf * Cd * I
 D. NATURAL WIND GUSTS: 5.2 psf * Cd * I
 E. WIND SPEED: 90 MPH
 F. ICE LOAD: 3 psf

3. SERVICEABILITY
 MAXIMUM 1" DISPLACEMENT FOR 30MPH WIND SPEED.

4. STRUCTURAL STEEL
 A. POLE MATERIAL IS ASTM A36 STEEL.
 B. STEEL TUBING SHALL CONFORM TO ASTM A500, GRADE C.
 C. HOT DIP GALVANIZE STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
 D. HARDWARE SHALL BE GALVANIZED AS PER ASTM A153

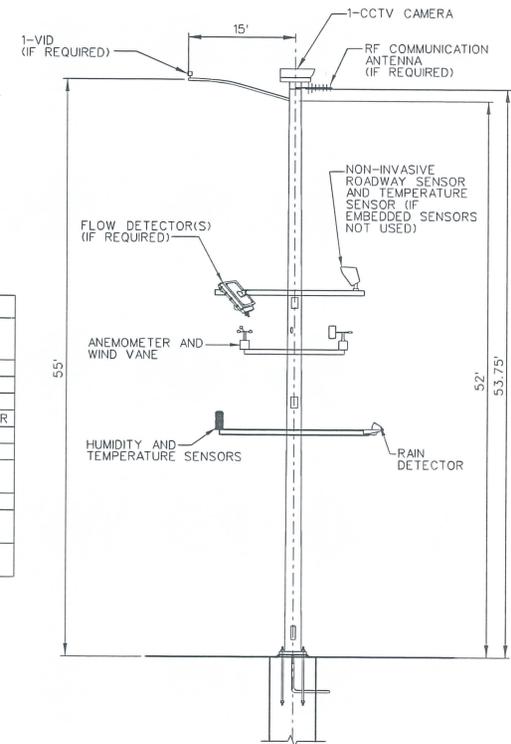
5. MATERIAL REQUIREMENTS
 A. STRUCTURAL STEEL : F_y = 36 ksi
 B. DRILLED SHAFT: CONCRETE CLASS S F'c = 4000 psi
 C. REINFORCING STEEL : ASTM A615 GRADE 60
 ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION 2010 ARTICLE 5.10. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.

6. BOLTED CONNECTIONS.
 A. ACCOMPLISH ALL STRUCTURAL HIGH STRENGTH BOLTING, EXCEPT ANCHOR BOLTS, USING AASHTO M164 BOLTS.
 B. USE A HARDENED FLAT WASHER BETWEEN THE NUT AND THE CONNECTED PART.
 C. USE HIGH STRENGTH BOLTS WITH DTIS OR TENSION CONTROL INDICATORS INSTALLED PER SUBSECTION 508.03.07 OF THE STANDARD SPECIFICATIONS.
 D. FABRICATE ANCHOR BOLTS FROM MATERIAL CONFORMING TO ASTM F1554 GRADE 36.
 E. HOT-DIP GALVANIZE ALL STEEL PARTS IN ACCORDANCE WITH ASTM A153, EXCEPT AS SHOWN FOR ONLY THE TOP 12" FOR ANCHOR BOLTS, AND AS SPECIFIED FOR HIGH STRENGTH BOLTING.
 F. HIGH STRENGTH BOLTS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C, OR MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50. WASHERS, NUTS, AND BOLTS IN ANY ASSEMBLY SHALL BE GALVANIZED BY THE SAME PROCESS. LUBRICATE THREADS WITH A DYED LUBRICANT.

7. WELDED CONNECTIONS
 A. WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED ON THE PLANS.
 B. WELD IN ACCORDANCE WITH SECTION 506 OF THE STANDARD SPECIFICATIONS.
 C. USE ONLY WELDERS QUALIFIED ACCORDING TO ANSI/AASHTO/AWS D1.1-2000, SECTION 4 FOR THE TYPE OF JOINT, ELECTRODE, POSITION OF THE JOINT, AND THE MATERIAL THICKNESS.
 D. USE ONLY PREQUALIFIED JOINTS.
 E. TEST ALL FULL PENETRATION GROOVE WELDS ULTRASONICALLY IN ACCORDANCE WITH SECTION 6, PART F OF ANSI/AASHTO/AWS D1.1-2000. ACCEPT OR REJECT EACH WELD DISCONTINUITY ON THE BASIS OF ITS INDICATION RATING AND ITS LENGTH IN ACCORDANCE WITH SECTION 9.3.
 F. HAVE ALL FILLET WELDS VISUALLY INSPECTED BY QUALIFIED PERSONNEL. ANY WELDS FOUND TO HAVE INCOMPLETE FUSION, OVERLAP OR CRACKS WILL BE REJECTED.

8. CROUTING
 A. SHIM BASE PLATES TO FINISH ELEVATION AND COMPLETELY FILL PLATE AREA WITH A HIGH STRENGTH, NON-FERROUS, NON-SHRINK GROUT.
 B. FORMULATE GROUT TO COMPLY WITH THE ASTM C1107.
 C. TAPER ALL FINISHED SURFACES AT 45 DEGREE +/-.
9. FOUNDATION: DRILLED SHAFT
10. GROUND ALL STRUCTURES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
11. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.

POLE ATTACHMENTS				
DESCRIPTION	QTY.	WEIGHT/EA (POUNDS)	EPA/EA (sq.ft)	HEIGHT ON POLE (ft)
CCTV	1	300	8.5	55
VID	1	20	0.85	55
ANEMOMETER	1	1.25	0.39	40-55
WIND VANE	1	1.50	0.95	SAME AS ANEMOMETER
RF ANTENNA (800 MHz)	1	8.8	3.69	53
FLOW DETECTOR	2	4.2	1.65	40-53
TEMPERATURE/HUMIDITY SENSOR	1	1	0.39	35-40
RAIN DETECTOR	1	1.1	0.36	35-40
PAVEMENT SENSOR (NON-INVASIVE)	1	8.2	1.77	40-51
TEMPERATURE SENSOR (NON-INVASIVE)	1	3.6	0.77	SAME AS PAVEMENT SENSOR



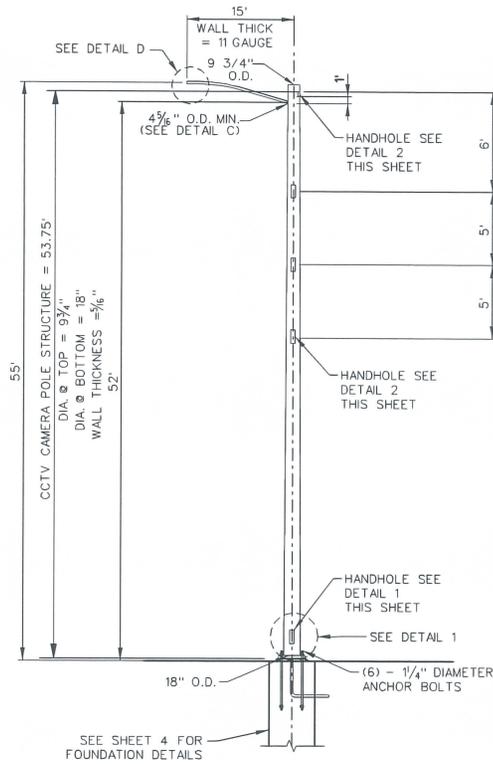
55 FOOT ITS POLE
NTS

No.	DESCRIPTION	DATE
	ISSUE RECORD	

PRELIMINARY SUBJECT TO REVISION DECEMBER 2011	STATE OF NEVADA DEPARTMENT OF TRANSPORTATION							
	55 FOOT CCTV CAMERA ITS POLE							
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REVIEWED BY	JAC							

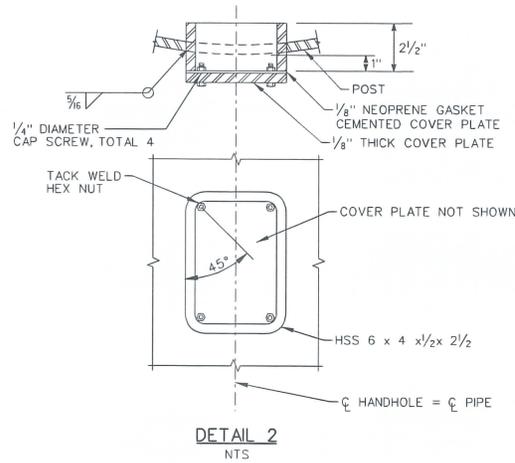
ATKINS
 2270 Corporate Circle, Suite 100
 Henderson, Nevada 89014
 Telephone: 702/261-7275
 Fax: 702/261-7226

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			2

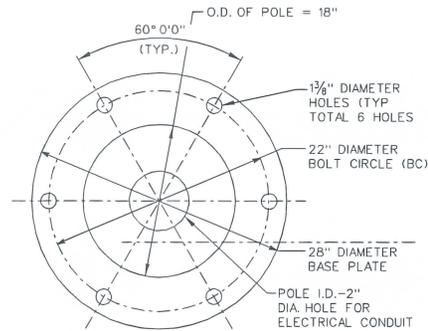


TYPICAL POLE ELEVATION

NTS
(ALL HEIGHTS ARE APPROXIMATE, ADJUST IN FIELD)

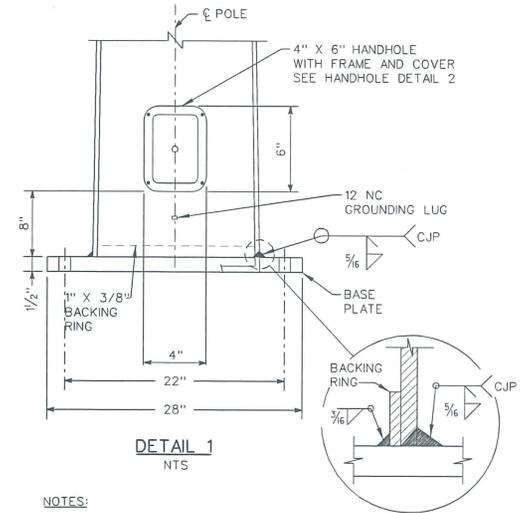


DETAIL 2
NTS



TYPICAL BASE PLATE PLAN

NTS



DETAIL 1
NTS

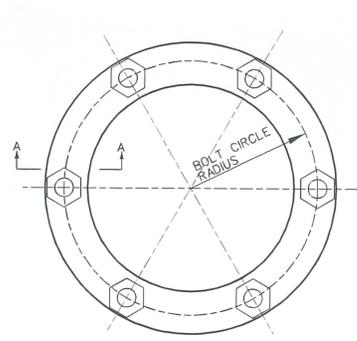
NOTES:

1. CCTV MOUNT ASSEMBLY TO BE INSTALLED AND MOUNTED PER MANUFACTURER'S SPECIFICATION.
2. POLE MATERIAL IS ASTM A36 STEEL. STRUCTURAL STEEL SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
3. SEE PLAN SHEETS AND NETWORK DIAGRAMS FOR INSTALLATION LOCATIONS AND EQUIPMENT TO BE INSTALLED AT EACH LOCATION.
4. INSTALL STEEL RAIN TIGHT REMOVABLE CAP ON TOP OF CCTV MOUNTING PLATE IF CCTV IS NOT SPECIFIED IN PLANS.
5. SWEEPS FOR CONDUIT SHALL NOT BE LESS THAN MINIMUM BENDING RADIUS OF FIBER.
6. IF VID IS NOT SPECIFIED IN PLANS, DO NOT INSTALL MAST ARM AND INSTALL STEEL RAIN TIGHT REMOVABLE PLATE OVER MAST ARM CONNECTION.

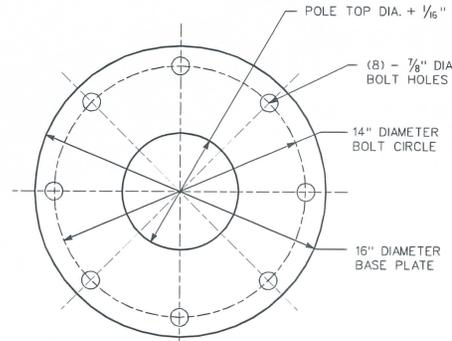
No.	DESCRIPTION	DATE
	ISSUE RECORD	

PRELIMINARY SUBJECT TO REVISION DECEMBER 2011	STATE OF NEVADA DEPARTMENT OF TRANSPORTATION	DESIGNED BY <u>JL</u> DRAWN BY <u>DJE</u> CHECKED BY <u>PP</u> REVIEWED BY <u>JAC</u>
	55 FOOT CCTV CAMERA ITS POLE DETAILS 1 OF 2	
	ATKINS <small>2370 Corporate Drive, Suite 110 Reno, NV 89502-4111 Telephone: 775.786.1215 Fax: 775.786.7956</small>	

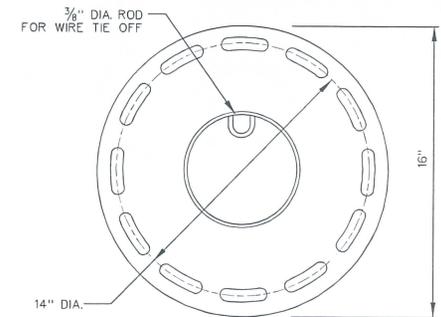
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			3



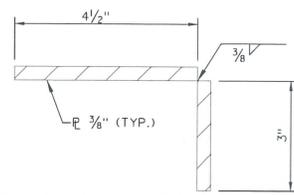
ANCHOR BOLT TEMPLATE



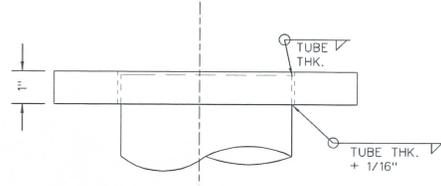
TOP VIEW



TOP VIEW

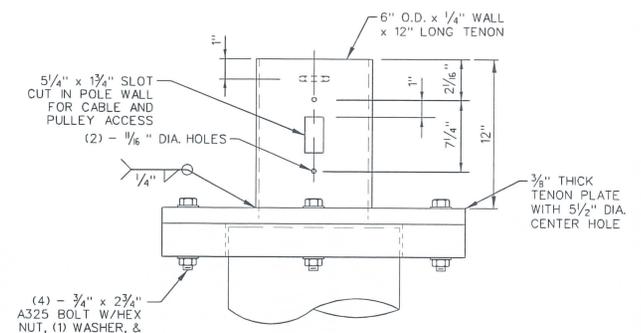


SECTION A-A



SIDE VIEW
TYPICAL CCTV POLE TOP MOUNT PLATE (FOR TENON MOUNT)
SEE DETAIL B

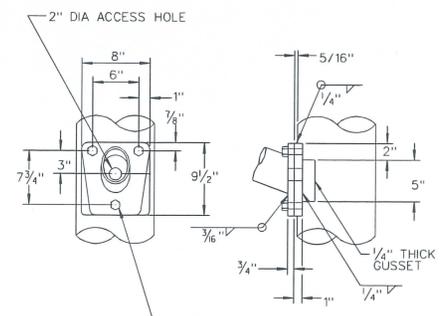
DETAIL A
NTS



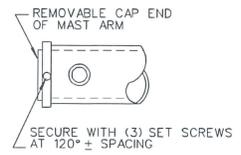
SIDE VIEW
TYPICAL TENON DETAIL
(VARIES BY MANUFACTURER)

DETAIL B
NTS

NOTE:
CONTRACTOR SHALL COORDINATE WITH CCTV LOWERING DEVICE VENDOR FOR LOWERING DEVICE MOUNTING REQUIREMENTS BEFORE CCTV POLE FABRICATION



DETAIL C

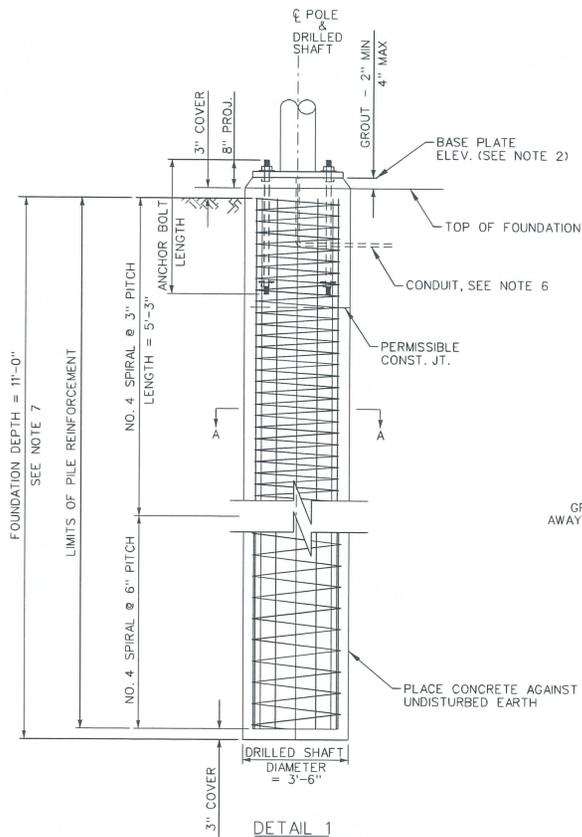


DETAIL D

No.	DESCRIPTION	DATE
	ISSUE RECORD	

PRELIMINARY SUBJECT TO REVISION DECEMBER 2011	STATE OF NEVADA DEPARTMENT OF TRANSPORTATION 55 FOOT CCTV CAMERA ITS POLE DETAILS 2 OF 2	DESIGNED BY <u>JL</u> DRAWN BY <u>DJE</u> CHECKED BY <u>PP</u> REVIEWED BY <u>JAC</u>
	ATKINS <small>2210 Corporate Center Drive, Suite 105 Henderson, Nevada 89015 Telephone: 702.938.7275 Fax: 702.938.7200</small>	

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			4

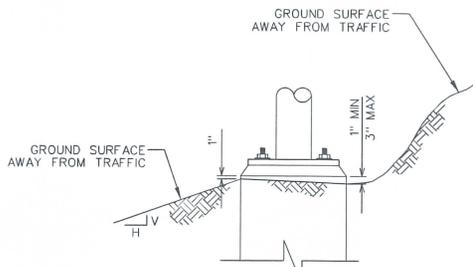


SOILS CONDITIONS (FLAT TO 2H:1V)					
SITE FOUNDATION MATERIAL	MINIMUM DRY UNIT WEIGHT (pcf)	INTERNAL FRICTION ANGLE (DEG)	P-Y MODULUS k _v (lb/in ³)	COHESION (psf)	STRAIN E ₅₀
CLAY	100	N/A	N/A	1000	0.007
SAND	100	30 (35*)	25	N/A	N/A

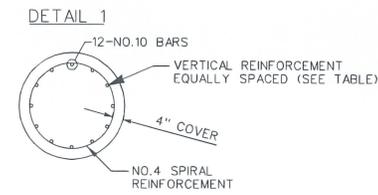
* IN CASE THE SLOPE OF 2H:1V TO 1.5H:1V

ITS POLE	ANCHOR BOLTS DIA.	ANCHOR BOLT LENGTH	VERTICAL REINFORCING STEEL	DRILLED SHAFT DIAMETER	FOUNDATION DEPTH
55'	1 1/4"	58"	12 - NO. 10	42"	11'

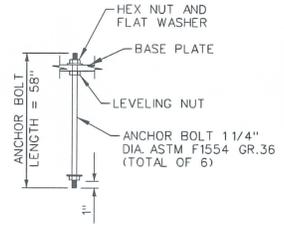
- NOTES:
- FOR ANCHOR BOLT LAYOUT SEE SHEET 2.
 - CONFIRM BASE PLATE ELEVATION WITH ENGINEER PRIOR TO POURING OF FOUNDATION.
 - DRILLED SHAFT SHALL BE CLASS "S" PCC AS SPECIFIED IN THE SPECIAL PROVISIONS.
 - PRIOR TO ERECTION OF THE POLE, BACKFILL WHICH IS EQUIVALENT TO THE SURROUNDING MATERIAL SHALL BE IN PLACE AND COMPACTED ACCORDING TO CONTRACT STANDARDS.
 - PILE SHALL BE FORMED 6" MIN. BELOW GROUND SURFACE. REMAINDER TO BE PLACED AGAINST UNDISTURBED MATERIAL.
 - FOR NUMBER AND SIZE OF CONDUIT IN FOUNDATION, SEE ELECTRICAL PLAN SHEETS.
 - DEPTH OF FOUNDATION (DRILLED SHAFT) WILL BE MEASURED FROM THE LOWEST POINT ON FINISHED GRADE AND LENGTH OF PILE WILL CHANGE ACCORDINGLY.
 - TERMINATE NO. 4 SPIRAL REINFORCEMENT WITH 135 DEGREE HOOK AROUND MAIN VERTICAL REINFORCEMENT.
 - ALL ANCHOR BOLTS AND NUTS SHALL CONFORM TO THE SPECIFICATIONS ASTM DESIGNATION F1554 GR.36 AND SHALL BE FURNISHED WITH COMMERCIAL QUALITY WASHERS.
 - THREAD UPPER 8" OF ANCHOR BOLTS AND GALVANIZE UPPER 12". THREAD LOWER 4" OF ANCHOR BOLT AND PLACE NUT WITH FLAT WASHER AT BOTTOM OF BOLT. TACK WELD NUT IN PLACE.
 - IF SOIL CONSISTS OF ORGANICS OR SATURATED SILT AND CLAY, CONTACT ENGINEER BEFORE PLACING FOUNDATION.
 - BONDING AND GROUNDING SHALL MEET THE NATIONAL ELECTRIC CODE AND NDOT STANDARDS. SEE POLE GROUNDING DETAIL ON NDOT STANDARD PLAN T-30.116.
 - STRUCTURAL BOLTS AND OTHER STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M 232 (ASTM A 153). EXPOSED PARTS OF ANCHOR BOLTS SHALL BE ZINC COATED OR OTHERWISE SUITABLY PROTECTED TO A MINIMUM OF 4" INTO THE CONCRETE.



DETAIL 2



SECTION A-A



DETAIL 3
ANCHOR BOLT DETAIL
(SEE NOTE 10)

No.	DESCRIPTION	DATE
	ISSUE RECORD	

PRELIMINARY SUBJECT TO REVISION DECEMBER 2011	STATE OF NEVADA DEPARTMENT OF TRANSPORTATION 55 FOOT CCTV CAMERA ITS POLE FOUNDATION DETAILS	DESIGNED BY <u>JL</u> DRAWN BY <u>DJE</u> CHECKED BY <u>PP</u> REVIEWED BY <u>JAC</u>
	2270 Corporate Center, Suite 100 Henderson, Nevada 89014 Telephone: 702/261-7275 Fax: 702/261-7226	



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: ITS POLE 30'

Note: A separate form is required for each standard detail.

Previously used: Contract Number: 3474 Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: USE FOR MULTIPLE ITS DEVICES
RWIS, CCTV, FLOW DETECTORS
STANDARDS THROUGHOUT STATE
BRIDGE ACCEPTED

Requestor Information: Name: Thomas H. Moore Phone: ~~702 756 7566~~ 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

Notes: _____

PRELIMINARY

SUBJECT TO REVISION
5555d06555

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

GENERAL NOTES:

1. DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION 2009 WITH 2010 INTERIM REVISIONS.

2. LOADING

- A. IMPORTANCE FACTORS (I f & I r): 1.0
- B. DRAG COEFFICIENT (C): 0.45 - 2.0 DEPENDING ON SHAPE OF MEMBER AND WIND VELOCITY
- C. MAXIMUM WIND LOAD: 23.4 psf * Cd * I
- D. NATURAL WIND GUSTS: 5.2 psf * Cd * I
- E. WIND SPEED: 90 MPH
- F. ICE LOAD: 3 psf
- G. FATIGUE CATEGORY: 1

3. SERVICEABILITY

MAXIMUM 1" DISPLACEMENT FOR 30MPH WIND SPEED.

4. STRUCTURAL STEEL

- A. POLE MATERIAL IS ASTM A572 GRADE 50 STEEL.
- B. STEEL TUBING SHALL CONFORM TO ASTM A500, GRADE C.
- C. HOT DIP GALVANIZE STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
- D. HARDWARE SHALL BE GALVANIZED AS PER ASTM A153

5. MATERIAL REQUIREMENTS

- A. STRUCTURAL STEEL : $F_y = 50$ ksi
 - B. DRILLED SHAFT: $F'_c = 4000$ psi
 - C. REINFORCING STEEL : ASTM A615 GRADE 60
- ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION 2010 ARTICLE 5.10. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.

6. BOLTED CONNECTIONS.

- A. ACCOMPLISH ALL STRUCTURAL HIGH STRENGTH BOLTING, EXCEPT ANCHOR BOLTS, USING AASHTO M164 BOLTS.
- B. USE A HARDENED FLAT WASHER BETWEEN THE NUT AND THE CONNECTED PART.
- C. USE HIGH STRENGTH BOLTS WITH DT'S OR TENSION CONTROL INDICATORS. INSTALLED PER SUBSECTION 506.03.07 OF THE STANDARD SPECIFICATIONS.
- D. FABRICATE ANCHOR BOLTS FROM MATERIAL CONFORMING TO ASTM F1554 GRADE 55.
- E. HOT-DIP GALVANIZE ALL STEEL PARTS IN ACCORDANCE WITH ASTM A153 (AASHTO M232), EXCEPT AS SPECIFIED FOR HIGH STRENGTH BOLTING.
- F. HIGH STRENGTH BOLTS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C, OR MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50. WASHERS, NUTS, AND BOLTS IN ANY ASSEMBLY SHALL BE GALVANIZED BY THE SAME PROCESS. DTI SHALL BE MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695. LUBRICATE THREADS WITH A DYED LUBRICANT.

7. WELDED CONNECTIONS

- A. WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED ON THE PLANS.
- B. WELD IN ACCORDANCE WITH SECTION 506 OF THE STANDARD SPECIFICATIONS.
- C. USE ONLY WELDERS QUALIFIED ACCORDING TO ANSI/AASHTO/AWS D1.1-2000, SECTION 4 FOR THE TYPE OF JOINT, ELECTRODE, POSITION OF THE JOINT, AND THE MATERIAL THICKNESS.
- D. USE ONLY PREQUALIFIED JOINTS.
- E. TEST ALL FULL PENETRATION GROOVE WELDS ULTRASONICALLY IN ACCORDANCE WITH SECTION 6, PART F OF ANSI/AASHTO/AWS D1.1-2000. ACCEPT OR REJECT EACH WELD DISCONTINUITY ON THE BASIS OF ITS INDICATION RATING AND ITS LENGTH IN ACCORDANCE WITH SECTION 9.3.
- F. HAVE ALL FILLET WELDS VISUALLY INSPECTED BY QUALIFIED PERSONNEL. ANY WELDS FOUND TO HAVE INCOMPLETE FUSION, OVERLAP OR CRACKS WILL BE REJECTED.

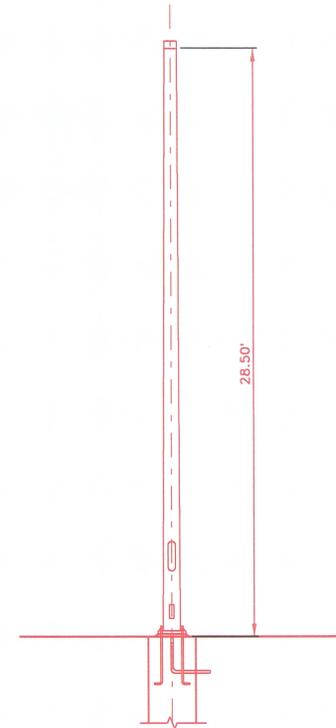
8. GROUTING

- A. SHIM BASE PLATES TO FINISH ELEVATION AND COMPLETELY FILL PLATE AREA WITH A HIGH STRENGTH, NON-FERROUS, NON-SHRINK GROUT.
- B. FORMULATE GROUT TO COMPLY WITH THE ASTM C1107.
- C. TAPER ALL FINISHED SURFACES AT 45 DEGREE +/-.

9. FOUNDATION: DRILLED SHAFT.

10. GROUND ALL STRUCTURES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.

11. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.



30 FOOT ITS POLE
NTS

SHEET 1 OF 3

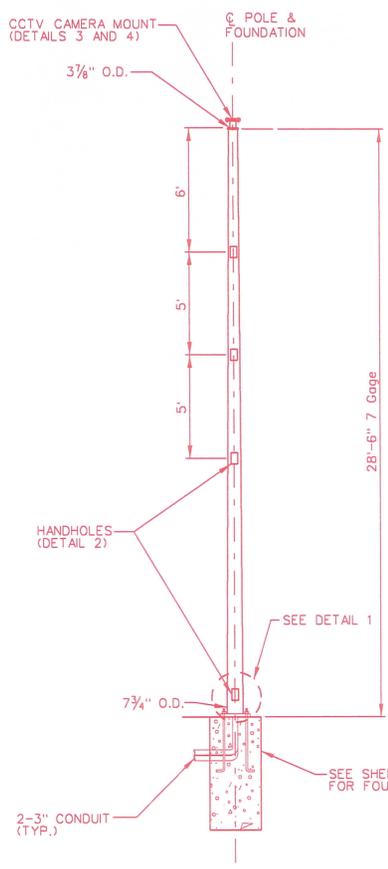
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

30 FOOT ITS POLE

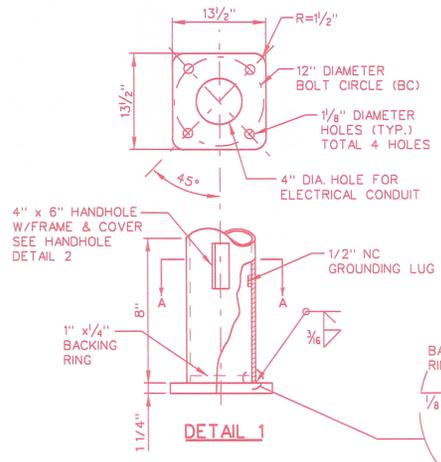
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

PRELIMINARY

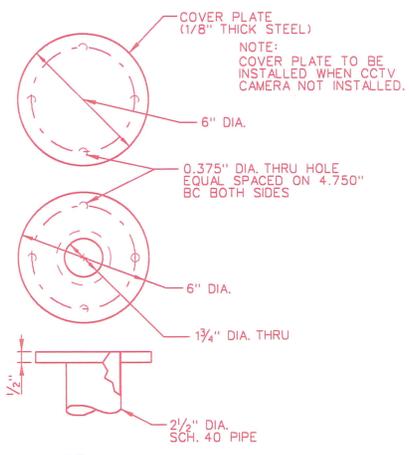
SUBJECT TO REVISION
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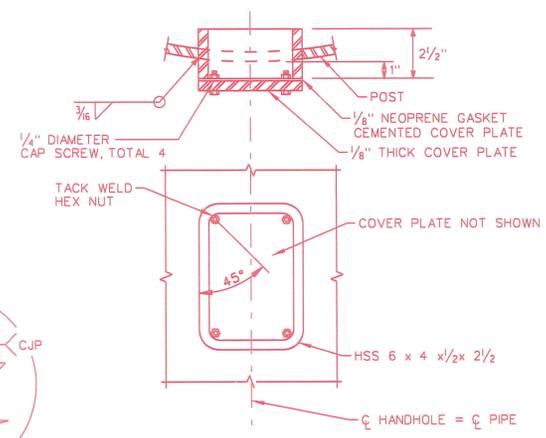
TYPICAL POLE ELEVATION



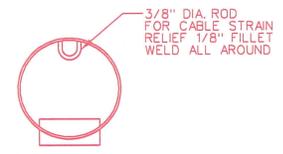
DETAIL 1



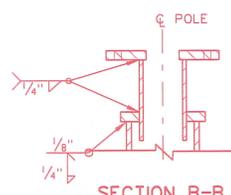
DETAIL 4
TYPICAL CCTV CAMERA MOUNT PLATE
(VARIES BY MANUFACTURER)
NTS



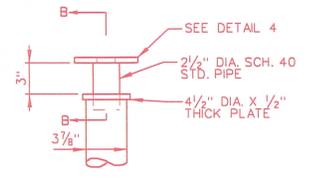
DETAIL 2
NTS



SECTION A-A
NTS



SECTION B-B
NTS



DETAIL 3
TYPICAL CCTV CAMERA MOUNT ASSEMBLY
(VARIES BY MANUFACTURER)
NTS

- NOTES:**
1. DEVICE MOUNT ASSEMBLIES TO BE INSTALLED AND MOUNTED PER MANUFACTURER'S SPECIFICATION AND RECOMMENDATIONS.
 2. SEE PLAN SHEETS AND NETWORK DIAGRAMS FOR INSTALLATION LOCATIONS AND EQUIPMENT TO BE INSTALLED.
 3. INSTALL STEEL RAIN TIGHT REMOVABLE CAP ON TOP OF POLE IF POLE TOP DEVICE IS NOT SPECIFIED IN PLANS.
 4. SWEEPS FOR CONDUIT SHALL NOT BE LESS THAN MINIMUM BENDING RADIUS OF FIBER.

SHEET 2 OF 3

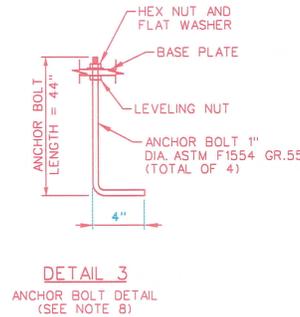
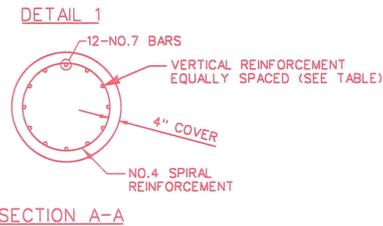
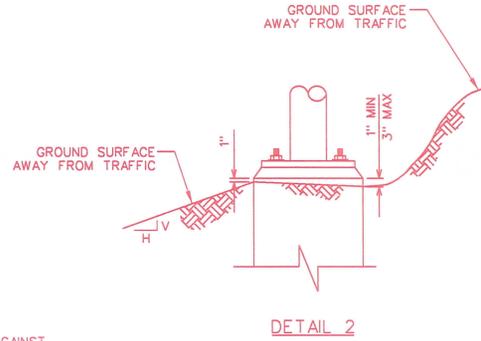
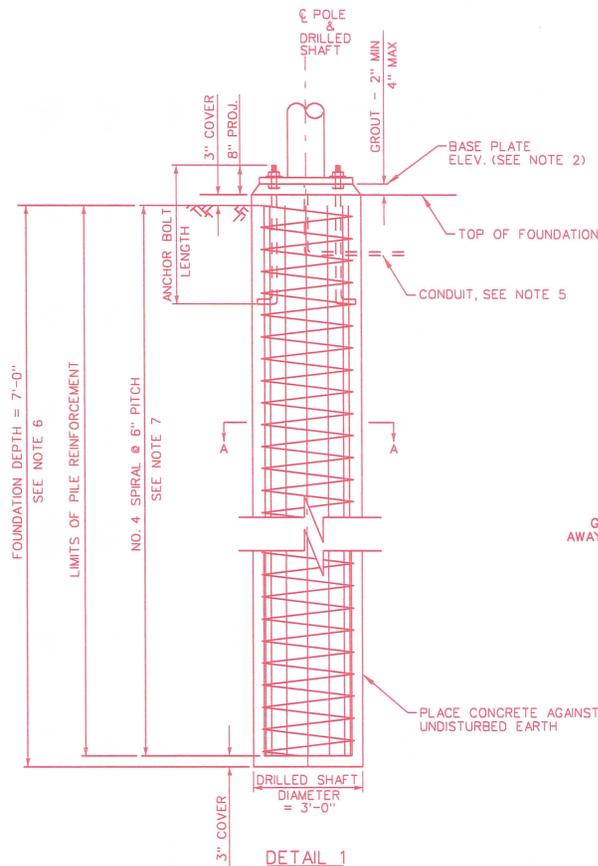
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

30 FOOT ITS POLE

PRELIMINARY

SUBJECT TO REVISION
5555dne555

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			



ITS POLE	ANCHOR BOLTS DIA.	ANCHOR BOLT LENGTH	VERTICAL REINFORCING STEEL	DRILLED SHAFT DIAMETER	FOUNDATION DEPTH
30'	1"	44"	12 - NO. 7	36"	7'

NOTES:

- FOR ANCHOR BOLT LAYOUT, REFER TO POLE MANUFACTURER'S SPECIFICATIONS.
- CONFIRM BASE PLATE ELEVATION WITH ENGINEER PRIOR TO POURING OF FOUNDATION.
- DRILLED SHAFT SHALL BE CONSTRUCTED ACCORDING TO SECTION 623 OF THE STANDARD SPECIFICATIONS.
- PILE SHALL BE FORMED 6" MIN. BELOW GROUND SURFACE. REMAINDER TO BE PLACED AGAINST UNDISTURBED MATERIAL.
- FOR NUMBER AND SIZE OF CONDUIT IN FOUNDATION, SEE ELECTRICAL PLAN SHEETS, UNLESS NOTED OTHERWISE.
- DEPTH OF FOUNDATION (DRILLED SHAFT) WILL BE MEASURED FROM THE LOWEST POINT ON FINISHED GRADE AND LENGTH OF PILE WILL CHANGE ACCORDINGLY.
- TERMINATE NO. 4 SPIRAL REINFORCEMENT WITH 135 DEGREE HOOK AROUND MAIN VERTICAL REINFORCEMENT.
- ALL ANCHOR BOLTS AND NUTS SHALL CONFORM TO THE SPECIFICATIONS ASTM DESIGNATION F1554 GR.55 AND SHALL BE FURNISHED WITH COMMERCIAL QUALITY WASHERS.
- THREAD UPPER 8" OF ANCHOR BOLTS AND GALVANIZE ENTIRE BOLT IN ACCORDANCE WITH ASTM A153 (AASHTO M232).
- BEFORE PLACING THE FOUNDATION, CONTACT THE NDOT GEOTECHNICAL ENGINEERING SECTION FOR FURTHER INVESTIGATION WHEN THE FOLLOWING SOIL CONDITIONS ARE ENCOUNTERED: (A) SOILS WITH HIGH ORGANIC CONTENT; (B) THE SITE CANNOT SUPPORT THE DRILL RIG; OR (C) FIRM BEDROCK IS ENCOUNTERED.
- BONDING AND GROUNDING SHALL MEET THE NATIONAL ELECTRIC CODE AND NDOT STANDARDS. SEE POLE GROUNDING DETAIL ON NDOT STANDARD PLAN T-30.1.16.
- STRUCTURAL BOLTS AND OTHER STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 (AASHTO M232).

SHEET 3 OF 3

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

30 FOOT CCTV
CAMERA ITS POLE
FOUNDATION DETAILS

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			1

GENERAL NOTES:

1. DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION 2009 WITH 2010 INTERIM REVISIONS.

2. LOADING
 A. IMPORTANCE FACTORS (If & Ir): 1.0
 B. DRAG COEFFICIENT (C): 0.45 - 2.0 DEPENDING ON SHAPE OF MEMBER AND WIND VELOCITY
 C. MAXIMUM WIND LOAD: 23.4 psf * Cd * I
 D. NATURAL WIND GUSTS: 5.2 psf * Cd * I
 E. WIND SPEED: 90 MPH
 F. ICE LOAD: 3 psf

3. SERVICEABILITY
 MAXIMUM 1" DISPLACEMENT FOR 30MPH WIND SPEED.

4. STRUCTURAL STEEL
 A. POLE MATERIAL IS ASTM A36 STEEL.
 B. STEEL TUBING SHALL CONFORM TO ASTM A500, GRADE C.
 C. HOT DIP GALVANIZE STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
 D. HARDWARE SHALL BE GALVANIZED AS PER ASTM A153

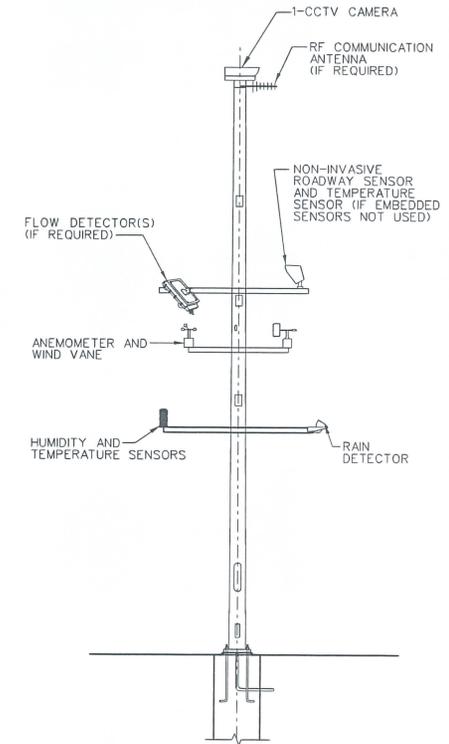
5. MATERIAL REQUIREMENTS
 A. STRUCTURAL STEEL: Fy = 36 ksi
 B. DRILLED SHAFT: CONCRETE CLASS 5 F'c = 4000 psi
 C. REINFORCING STEEL: ASTM A615 GRADE 60
 ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION 2010 ARTICLE 5.10. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.

6. BOLTED CONNECTIONS.
 A. ACCOMPLISH ALL STRUCTURAL HIGH STRENGTH BOLTING, EXCEPT ANCHOR BOLTS, USING AASHTO M164 BOLTS.
 B. USE A HARDENED FLAT WASHER BETWEEN THE NUT AND THE CONNECTED PART.
 C. USE HIGH STRENGTH BOLTS WITH DT'S OR TENSION CONTROL INDICATORS INSTALLED PER SUBSECTION 506.03.07 OF THE STANDARD SPECIFICATIONS.
 D. FABRICATE ANCHOR BOLTS FROM MATERIAL CONFORMING TO ASTM F1554 GRADE 36.
 E. HOT-DIP GALVANIZE ALL STEEL PARTS IN ACCORDANCE WITH ASTM A153, EXCEPT AS SHOWN FOR ONLY THE TOP 12" FOR ANCHOR BOLTS, AND AS SPECIFIED FOR HIGH STRENGTH BOLTING.
 F. HIGH STRENGTH BOLTS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C, OR MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50. WASHERS, NUTS, AND BOLTS IN ANY ASSEMBLY SHALL BE GALVANIZED BY THE SAME PROCESS. LUBRICATE THREADS WITH A DYED LUBRICANT.

7. WELDED CONNECTIONS
 A. WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED ON THE PLANS.
 B. WELD IN ACCORDANCE WITH SECTION 506 OF THE STANDARD SPECIFICATIONS.
 C. USE ONLY WELDERS QUALIFIED ACCORDING TO ANSI/AASHTO/AWS D1.1-2000, SECTION 4 FOR THE TYPE OF JOINT, ELECTRODE, POSITION OF THE JOINT, AND THE MATERIAL THICKNESS.
 D. USE ONLY PREQUALIFIED JOINTS.
 E. TEST ALL FULL PENETRATION GROOVE WELDS ULTRASONICALLY IN ACCORDANCE WITH SECTION 6, PART F OF ANSI/AASHTO/AWS D1.1-2000. ACCEPT OR REJECT EACH WELD DISCONTINUITY ON THE BASIS OF ITS INDICATION RATING AND ITS LENGTH IN ACCORDANCE WITH SECTION 9.3.
 F. HAVE ALL FILLET WELDS VISUALLY INSPECTED BY QUALIFIED PERSONNEL. ANY WELDS FOUND TO HAVE INCOMPLETE FUSION, OVERLAP OR CRACKS WILL BE REJECTED.

8. GROUTING
 A. SHIM BASE PLATES TO FINISH ELEVATION AND COMPLETELY FILL PLATE AREA WITH A HIGH STRENGTH, NON-FERROUS, NON-SHRINK GROUT.
 B. FORMULATE GROUT TO COMPLY WITH THE ASTM C107.
 C. TAPER ALL FINISHED SURFACES AT 45 DEGREE +/-.
9. FOUNDATION: DRILLED SHAFT
10. GROUND ALL STRUCTURES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
11. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.

POLE ATTACHMENTS				
DESCRIPTION	QTY.	WEIGHT/EA (POUNDS)	EPA/EA (sq.ft)	HEIGHT ON POLE (ft)
CCTV	1	18.5	1.79	28.5
ANEMOMETER	1	1.25	0.39	15-28.5
WIND VANE	1	1.50	0.95	SAME AS ANEMOMETER
RF ANTENNA (800 MHZ)	1	8.8	3.69	28.0
FLOW DETECTOR	2	4.2	1.65	15.0-26.0
TEMPERATURE / HUMIDITY SENSOR	1	1	0.39	10.0-15.0
RAIN DETECTOR	1	1.1	0.36	10.5-15.0
PAVEMENT SENSOR (NON-INVASIVE)	1	8.2	1.77	15.0-26.0
TEMPERATURE SENSOR (NON-INVASIVE)	1	3.6	0.77	SAME AS PAVEMENT SENSOR

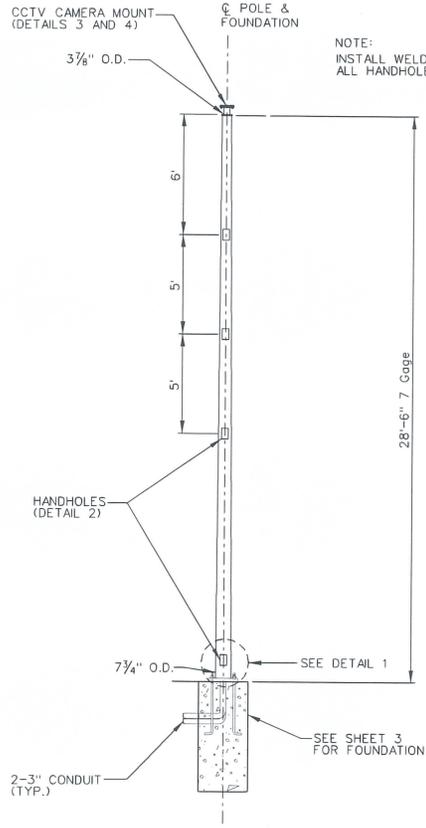


30 FOOT ITS POLE
 NTS

No.	DESCRIPTION	DATE
	ISSUE RECORD	

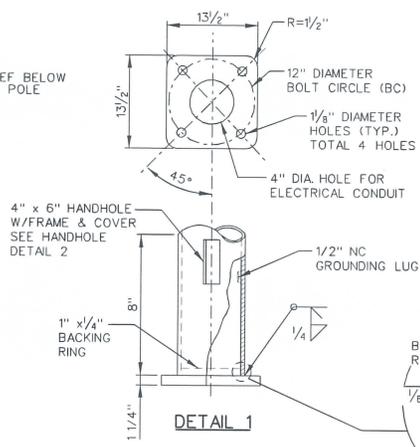
STATE OF NEVADA DEPARTMENT OF TRANSPORTATION	
30 FOOT CCTV CAMERA ITS POLE	
PRELIMINARY SUBJECT TO REVISION DECEMBER 2011	 <small>2210 Corporate Center Suite 100 Henderson, Nevada 89014 Telephone: 702/265-7575 Fax: 702/265-7595</small>
DESIGNED BY: <u>JL</u>	DRAWN BY: <u>DJE</u>
CHECKED BY: <u>PP</u>	REVIEWED BY: <u>JAC</u>

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			2

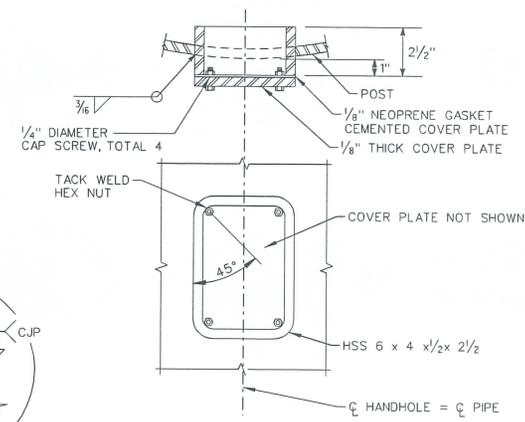


TYPICAL POLE ELEVATION

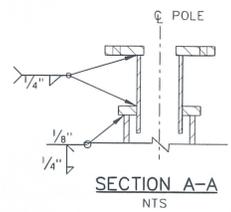
NOTE:
INSTALL WELDED STRAIN RELIEF BELOW
ALL HANDHOLES AND TOP OF POLE



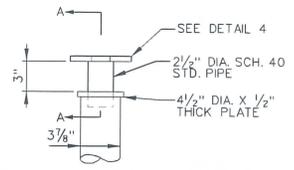
DETAIL 1



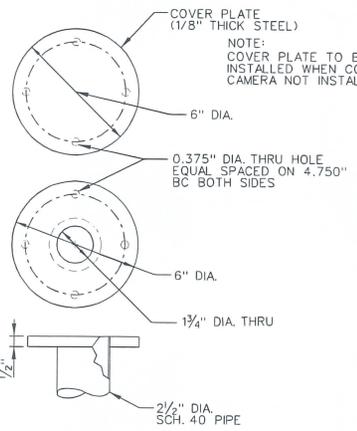
DETAIL 2
NTS



SECTION A-A
NTS



DETAIL 3
CCTV CAMERA MOUNT ASSEMBLY
NTS



DETAIL 4
CCTV CAMERA MOUNT PLATE
NTS

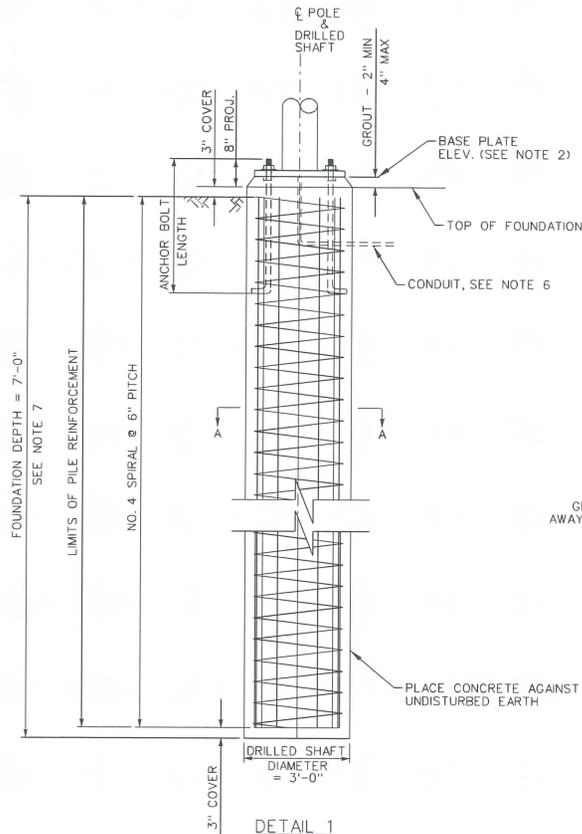
- NOTES:
- CCTV MOUNT ASSEMBLY TO BE INSTALLED AND MOUNTED PER MANUFACTURER'S SPECIFICATION.
 - POLE MATERIAL IS ASTM A36 STEEL. STRUCTURAL STEEL SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
 - SEE PLAN SHEETS AND NETWORK DIAGRAMS FOR INSTALLATION LOCATIONS AND EQUIPMENT TO BE INSTALLED AT EACH LOCATION.
 - INSTALL STEEL RAIN TIGHT REMOVABLE CAP ON TOP OF CCTV MOUNTING PLATE IF CCTV IS NOT SPECIFIED IN PLANS.
 - SWEEPS FOR CONDUIT SHALL NOT BE LESS THAN MINIMUM BENDING RADIUS OF FIBER.

No.	DESCRIPTION	DATE
	ISSUE RECORD	

PRELIMINARY SUBJECT TO REVISION DECEMBER 2011	STATE OF NEVADA DEPARTMENT OF TRANSPORTATION	
	30 FOOT CCTV CAMERA ITS POLE DETAILS	
	DESIGNED BY DRAWN BY CHECKED BY REVIEWED BY	JL DJE PP JAC

ATKINS
2275 Corporate Center Suite 100
Reno, Nevada 89509
Telephone: 775/283-7275
Fax: 775/283-7200

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			3

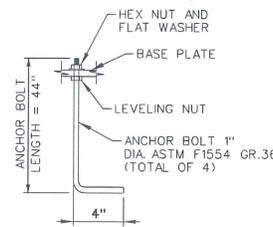
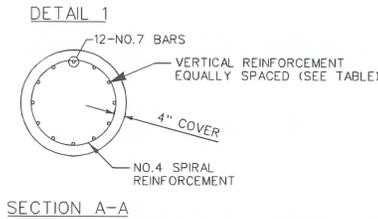
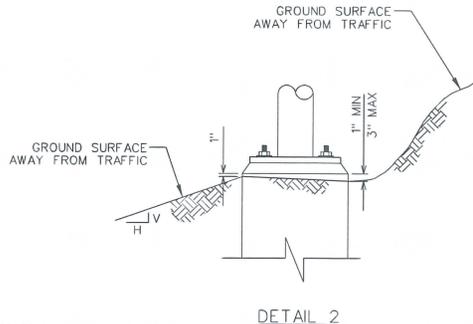


SOILS CONDITIONS (FLAT TO 2H:1V)					
SITE FOUNDATION MATERIAL	MINIMUM DRY WEIGHT (pcf)	INTERNAL FRICTION ANGLE (DEG)	P-Y MODULUS k _v (lb/in ³)	COHESION (psf)	STRAIN E ₅₀
CLAY	100	N/A	N/A	1000	0.007
SAND	100	30 (35*)	25	N/A	N/A

* IN CASE THE SLOPE OF 2H:1V TO 1.5H:1V

ITS POLE	ANCHOR BOLTS DIA.	ANCHOR BOLT LENGTH	VERTICAL REINFORCING STEEL	DRILLED SHAFT DIAMETER	FOUNDATION DEPTH
30'	1"	44"	12 - NO. 7	36"	7'

- NOTES:
- FOR ANCHOR BOLT LAYOUT SEE SHEET 2.
 - CONFIRM BASE PLATE ELEVATION WITH ENGINEER PRIOR TO POURING OF FOUNDATION.
 - DRILLED SHAFT SHALL BE CLASS "S" PCC AS SPECIFIED IN THE SPECIAL PROVISIONS.
 - PRIOR TO ERECTION OF THE POLE, BACKFILL WHICH IS EQUIVALENT TO THE SURROUNDING MATERIAL SHALL BE IN PLACE AND COMPACTED ACCORDING TO CONTRACT STANDARDS.
 - PILE SHALL BE FORMED 6" MIN. BELOW GROUND SURFACE. REMAINDER TO BE PLACED AGAINST UNDISTURBED MATERIAL.
 - FOR NUMBER AND SIZE OF CONDUIT IN FOUNDATION, SEE ELECTRICAL PLAN SHEETS, UNLESS NOTED OTHERWISE.
 - DEPTH OF FOUNDATION (DRILLED SHAFT) WILL BE MEASURED FROM THE LOWEST POINT ON FINISHED GRADE AND LENGTH OF PILE WILL CHANGE ACCORDINGLY.
 - TERMINATE NO. 4 SPIRAL REINFORCEMENT WITH 135 DEGREE HOOK AROUND MAIN VERTICAL REINFORCEMENT.
 - ALL ANCHOR BOLTS AND NUTS SHALL CONFORM TO THE SPECIFICATIONS ASTM DESIGNATION F1554 GR.55 AND SHALL BE FURNISHED WITH COMMERCIAL QUALITY WASHERS.
 - THREAD UPPER 8" OF ANCHOR BOLTS AND GALVANIZE UPPER 12". THREAD LOWER 4" OF ANCHOR BOLT AND PLACE NUT WITH FLAT WASHER AT BOTTOM OF BOLT. TACK WELD NUT IN PLACE.
 - IF SOIL CONSISTS OF ORGANICS OR SATURATED SILT AND CLAY, CONTACT ENGINEER BEFORE PLACING FOUNDATION.
 - BONDING AND GROUNDING SHALL MEET THE NATIONAL ELECTRIC CODE AND NDOT STANDARDS. SEE POLE GROUNDING DETAIL ON NDOT STANDARD PLAN T-30.1.16.
 - STRUCTURAL BOLTS AND OTHER STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M 232 (ASTM A 153). EXPOSED PARTS OF ANCHOR BOLTS SHALL BE ZINC COATED OR OTHERWISE SUITABLY PROTECTED TO A MINIMUM OF 4" INTO THE CONCRETE.



No.	DESCRIPTION	DATE
	ISSUE RECORD	

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

**30 FOOT CCTV
CAMERA ITS POLE
FOUNDATION DETAILS**

PRELIMINARY
SUBJECT TO REVISION
DECEMBER 2011

ATKINS
2220 Corporate Oaks Suite 110
Fremont, Nevada 89274
Phone: 702.261.7271
Fax: 702.261.7250

DESIGNED BY	JL
DRAWN BY	DJE
CHECKED BY	PP
REVIEWED BY	JAC



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: ITS POLE 30' 4" POST

Note: A separate form is required for each standard detail.

Previously used: Contract Number: 3474 Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: COST SAVING POLE VERSUS THE
ITS POLE 30' & STANDARD

BRIDGE ACCEPTED

Requestor Information: Name: Thomas J. Moore Phone: ~~1234567~~ 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:

CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

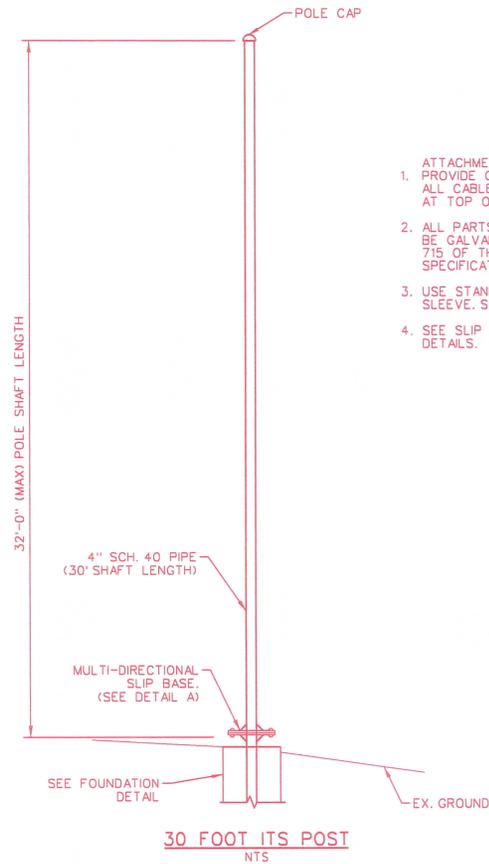
Notes: _____

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

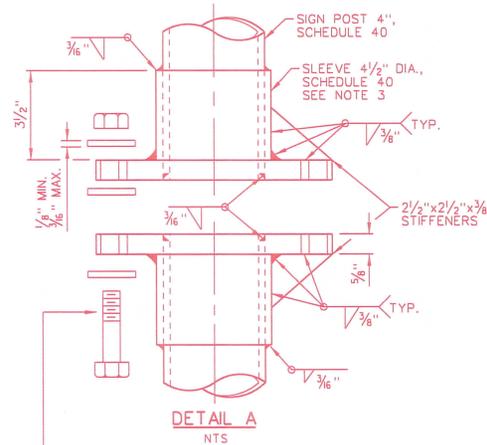
GENERAL NOTES:

- DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION 2009 WITH 2011 INTERIM REVISIONS.
- LOADING
 - IMPORTANCE FACTORS (If & Ir): 1.0
 - DRAG COEFFICIENT (Cd): 0.45 - 2.0 DEPENDING ON SHAPE OF MEMBER AND WIND VELOCITY
 - MAXIMUM WIND LOAD: 23.4 psf * Cd * I
 - NATURAL WIND GUSTS: 5.2 psf * Cd * I
 - WIND SPEED: 90 MPH
 - ICE LOAD: 3 psf
 - FATIGUE CATEGORY: II
- STRUCTURAL STEEL
 - POLE MATERIAL IS ASTM A53 GRADE B STEEL (Fy = 35 KSI).
 - HOT DIP GALVANIZE STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
 - HARDWARE SHALL BE GALVANIZED AS PER ASTM A153
- MATERIAL REQUIREMENTS
 - STRUCTURAL STEEL (OTHER THAN POST)(ASTM A36): Fy = 36 ksi
 - DRILLED SHAFT: F'c = 4000 psi
 - REINFORCING STEEL: ASTM A615 GRADE 60

ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF THE AASHTO LRF D BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION 2010 ARTICLE 5.10. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.
- BOLTED CONNECTIONS.
 - ACCOMPLISH ALL STRUCTURAL HIGH STRENGTH BOLTING, USING AASHTO M164 BOLTS.
 - USE A HARDENED FLAT WASHER BETWEEN THE NUT AND THE CONNECTED PART.
 - USE HIGH STRENGTH BOLTS WITH DTI'S OR TENSION CONTROL INDICATORS INSTALLED PER SUBSECTION 506.03.07 OF THE STANDARD SPECIFICATIONS.
 - HOT-DIP GALVANIZE ALL STEEL PARTS IN ACCORDANCE WITH ASTM A153 (AASHTO M232).
 - HIGH STRENGTH BOLTS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C, OR MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50. WASHERS, NUTS, AND BOLTS IN ANY ASSEMBLY SHALL BE GALVANIZED BY THE SAME PROCESS. LUBRICATE THREADS WITH A DYED LUBRICANT.
- WELDED CONNECTIONS
 - WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED ON THE PLANS.
 - WELD IN ACCORDANCE WITH SECTION 506 OF THE STANDARD SPECIFICATIONS.
 - USE ONLY WELDERS QUALIFIED ACCORDING TO ANSI/AASHTO/AWS D1.1-2000, SECTION 4 FOR THE TYPE OF JOINT, ELECTRODE, POSITION OF THE JOINT, AND THE MATERIAL THICKNESS.
 - USE ONLY PREQUALIFIED JOINTS.
 - TEST ALL FULL PENETRATION GROOVE WELDS ULTRASONICALLY IN ACCORDANCE WITH SECTION 6, PART F OF ANSI/AASHTO/AWS D1.1-2000. ACCEPT OR REJECT EACH WELD DISCONTINUITY ON THE BASIS OF ITS INDICATION RATING AND ITS LENGTH IN ACCORDANCE WITH SECTION 9.3.
 - HAVE ALL FILLET WELDS VISUALLY INSPECTED BY QUALIFIED PERSONNEL. ANY WELDS FOUND TO HAVE INCOMPLETE FUSION, OVERLAP OR CRACKS WILL BE REJECTED.
- FOUNDATION: DRILLED SHAFT.
- GROUND ALL STRUCTURES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
- DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.



- ATTACHMENT NOTES:**
- PROVIDE CABLE STRAIN RELIEF FOR ALL CABLES. ATTACH TO "J" HOOK AT TOP OF POLE, WHEN PROVIDED.
 - ALL PARTS AND HARDWARE SHALL BE GALVANIZED AS PER SECTION 715 OF THE NDOT STANDARD SPECIFICATIONS, EXCEPT AS NOTED.
 - USE STANDARD WEIGHT PIPE FOR SLEEVE. SEE ASTM A 53.
 - SEE SLIP BASE TOP AND BOTTOM PLATE DETAILS.

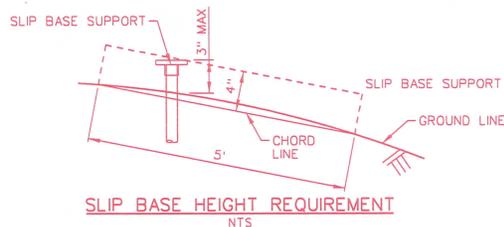


5/8"-11 x 3 1/8" BOLT, TYPE 1 ASTM A 325 OR TYPE 1 ASTM A 449 (GRADE 5); EACH WITH THREE USS THROUGH HARDENED WASHERS ASTM F 436 TYPE 1; AND ONE NYLON INSERT STOP NUT ASTM A 563 DH. ALL ITEMS SHALL BE GALVANIZED AS PER MANUFACTURER'S SPECIFICATIONS. TORQUE WITHIN THE RANGE OF 24-29 FT-LB. SEE BOLT DETAIL ON THIS SHEET.

n = A TYPICAL MANUFACTURER'S IDENTIFICATION



TOP VIEW BOLT DETAIL

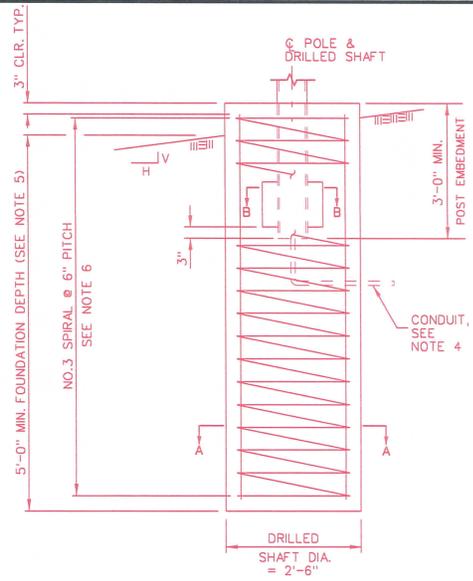


SHEET 1 OF 2

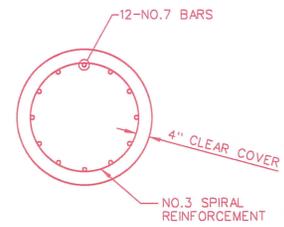
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

30 FOOT ITS 4 INCH POST

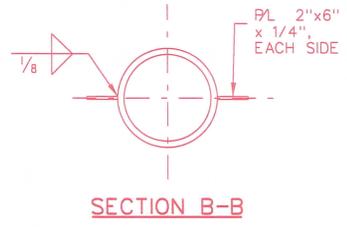
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			



DETAIL 1



SECTION A-A

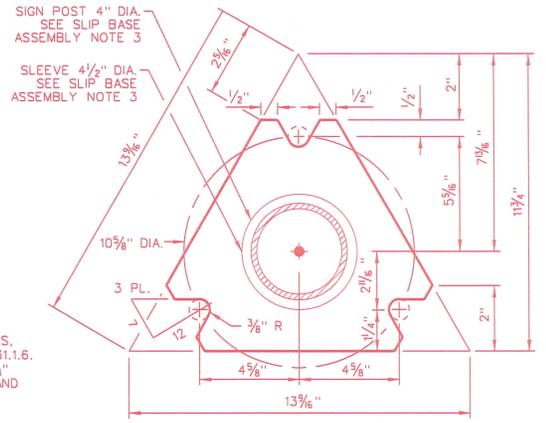


SECTION B-B

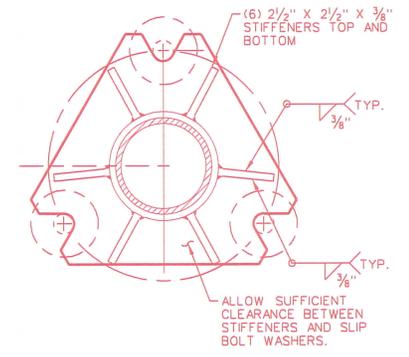
- SLIP BASE ASSEMBLY NOTES:**
1. ALL PARTS AND HARDWARE SHALL BE GALVANIZED AS PER SECTION 715 OF THE NEVADA DOT STANDARD SPECIFICATIONS, EXCEPT AS NOTED.
 2. MULTI-DIRECTIONAL SLIP BASES ARE NOT REQUIRED BEHIND CONCRETE BARRIER RAIL OR BEHIND GUARDRAIL WHERE THE SIGN POST IS GREATER THAN 2'-6" FROM THE BACK SIDE OF THE GUARDRAIL POST.
 3. USE STANDARD WEIGHT PIPE FOR PIPE AND SLEEVE, SEE ASTM A53.
 4. FOR DETAILS ON SIGN LOCATION POST TYPE PANEL BRACING AND SIGN ISLANDS, SEE STANDARD PLAN T-311.1 THRU T-311.6.
 5. STIFFENER SHALL BE 2 1/2" X 2 1/2" X 3/8" ON BOTH SIDES OF SLIP BOLTS, TOP AND BOTTOM.

GENERAL NOTES:

1. DRILLED SHAFT SHALL BE CLASS "S" PCC AS SPECIFIED IN THE SPECIAL PROVISIONS.
2. PILE SHALL BE FORMED 6" MIN. BELOW GROUND SURFACE, REMAINDER TO BE PLACED AGAINST UNDISTURBED MATERIAL.
3. IF NATIVE SOILS ARE DISTURBED PRIOR TO ERECTION OF THE POLE, BACKFILL WHICH IS EQUIVALENT TO THE SURROUNDING MATERIAL SHALL BE IN PLACE AND COMPACTED ACCORDING TO CONTRACT STANDARDS.
4. FOR NUMBER AND SIZE OF CONDUIT IN FOUNDATION, SEE ELECTRICAL PLAN SHEETS.
5. DEPTH OF FOUNDATION (DRILLED SHAFT) WILL BE MEASURED FROM THE LOWEST POINT ON FINISHED GRADE AND LENGTH OF PILE WILL CHANGE ACCORDINGLY.
6. TERMINATE NO. 3 SPIRAL REINFORCEMENT WITH 135 DEGREE HOOK AROUND MAIN VERTICAL REINFORCEMENT, WITH 1/2 TURNS @ TOP & BOTOTM.
7. IF SOIL CONSISTS OF ORGANICS OR SATURATED SILT AND CLAY, CONTACT ENGINEER BEFORE PLACING FOUNDATION.
8. BONDING AND GROUNDING SHALL MEET THE NATIONAL ELECTRIC CODE AND NDOT STANDARDS. SEE POLE GROUNDING DETAIL ON NDOT STANDARD PLAN T-30.1.16.
9. STRUCTURAL BOLTS AND OTHER STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M 232 (ASTM A 153).



**PLAN VIEW
TOP/BOTTOM PLATE**
PLATE THICKNESS = 5/8"
NTS

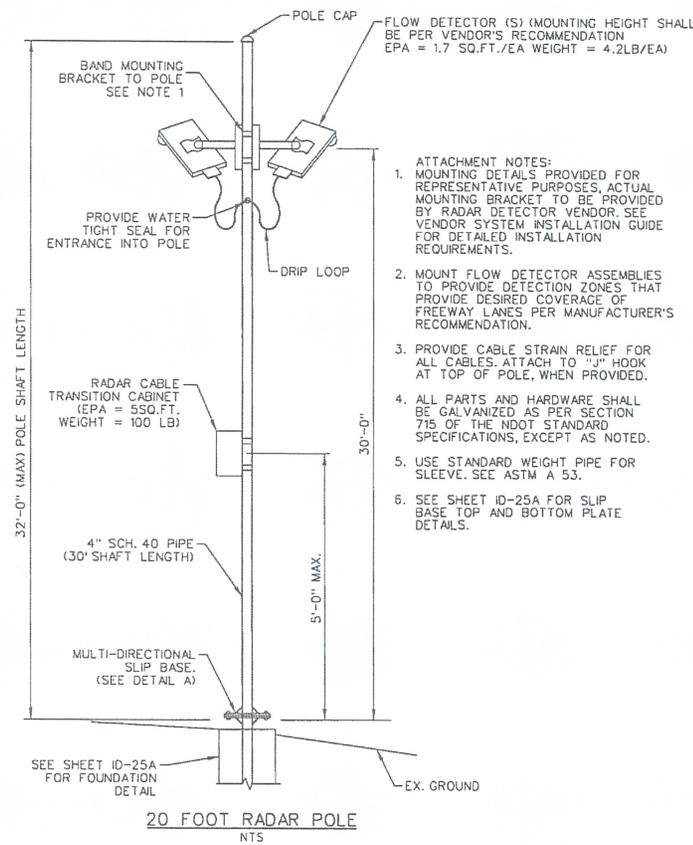


**TOP/BOTTOM PLATE
STIFFENER DETAIL**
NTS

SOILS CONDITIONS (FLAT TO 2H:1V)					
SITE FOUNDATION MATERIAL	MINIMUM DRY UNIT WEIGHT (pcf)	INTERNAL FRICTION ANGLE (DEG)	P-Y MODULUS k _v (lb/in ³)	COHESION (psf)	STRAIN E ₅₀
CLAY	100	N/A	N/A	1000	0.007
SAND	100	30 (35*)	25	N/A	N/A

* IN CASE THE SLOPE OF 2H:1V TO 1.5H:1V

FED. REG. NO.	STATE	PROJECT NO.	COUNTY	SHEET NO.
9	NEVADA	SPI-015-105B1	CLARK	10-25



POLE CAP
FLOW DETECTOR (S) (MOUNTING HEIGHT SHALL BE PER VENDOR'S RECOMMENDATION
EPA = 1.7 SQ.FT./EA WEIGHT = 4.2LB/EA)

BAND MOUNTING BRACKET TO POLE
SEE NOTE 1

PROVIDE WATER TIGHT SEAL FOR ENTRANCE INTO POLE

DRIP LOOP

RADAR CABLE TRANSITION CABINET
(EPA = 550.FT. WEIGHT = 100 LB)

30'-0"

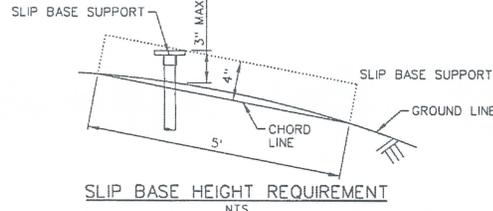
4" SCH. 40 PIPE (30' SHAFT LENGTH)

MULTI-DIRECTIONAL SLIP BASE. (SEE DETAIL A)

SEE SHEET ID-25A FOR FOUNDATION DETAIL

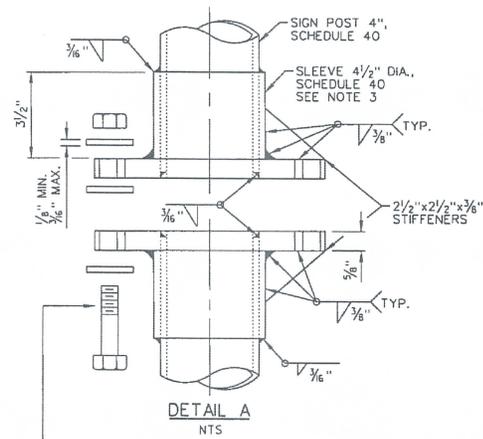
EX. GROUND

20 FOOT RADAR POLE
NTS



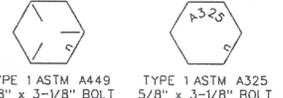
SLIP BASE HEIGHT REQUIREMENT
NTS

- ATTACHMENT NOTES:
1. MOUNTING DETAILS PROVIDED FOR REPRESENTATIVE PURPOSES, ACTUAL MOUNTING BRACKET TO BE PROVIDED BY RADAR DETECTOR VENDOR. SEE VENDOR SYSTEM INSTALLATION GUIDE FOR DETAILED INSTALLATION REQUIREMENTS.
 2. MOUNT FLOW DETECTOR ASSEMBLIES TO PROVIDE DETECTION ZONES THAT PROVIDE DESIRED COVERAGE OF FREEWAY LANES PER MANUFACTURER'S RECOMMENDATION.
 3. PROVIDE CABLE STRAIN RELIEF FOR ALL CABLES. ATTACH TO "J" HOOK AT TOP OF POLE, WHEN PROVIDED.
 4. ALL PARTS AND HARDWARE SHALL BE GALVANIZED AS PER SECTION 715 OF THE NDOT STANDARD SPECIFICATIONS, EXCEPT AS NOTED.
 5. USE STANDARD WEIGHT PIPE FOR SLEEVE. SEE ASTM A 53.
 6. SEE SHEET ID-25A FOR SLIP BASE TOP AND BOTTOM PLATE DETAILS.



5/8"-11 x 3 1/8" BOLT, TYPE 1 ASTM A 325 OR TYPE 1 ASTM A 449 (GRADE 5); EACH WITH THREE USS THROUGH HARDENED WASHERS ASTM F 436 TYPE 1; AND ONE NYLON INSERT STOP NUT ASTM A 563 DH. ALL ITEMS SHALL BE GALVANIZED AS PER MANUFACTURER'S SPECIFICATIONS, TORQUE WITHIN THE RANGE OF 24-29 FT-LB. SEE BOLT DETAIL ON THIS SHEET.

n = A TYPICAL MANUFACTURER'S IDENTIFICATION



TOP VIEW BOLT DETAIL

GENERAL NOTES:

1. DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION 2009 WITH 2011 INTERIM REVISIONS.
2. LOADING
 - A. IMPORTANCE FACTORS (I_f & I_r): 1.0
 - B. DRAG COEFFICIENT (C_d): 0.45 - 2.0 DEPENDING ON SHAPE OF MEMBER AND WIND VELOCITY
 - C. MAXIMUM WIND LOAD: 23.4 psf * C_d * I
 - D. NATURAL WIND GUSTS: 5.2 psf * C_d * I
 - E. WIND SPEED: 90 MPH
 - F. ICE LOAD: 3 psf
 - G. FATIGUE CATEGORY: II
3. STRUCTURAL STEEL
 - A. POLE MATERIAL IS ASTM A53 GRADE B STEEL (F_y = 35 KSI).
 - B. HOT DIP GALVANIZE STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
 - C. HARDWARE SHALL BE GALVANIZED AS PER ASTM A153
4. MATERIAL REQUIREMENTS
 - A. STRUCTURAL STEEL (OTHER THAN POST)(ASTM A36): F_y = 36 ksi
 - B. DRILLED SHAFT: F_c = 4000 psi
 - C. REINFORCING STEEL: ASTM A615 GRADE 60

ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION 2010 ARTICLE 5.10. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.
5. BOLTED CONNECTIONS.
 - A. ACCOMPLISH ALL STRUCTURAL HIGH STRENGTH BOLTING, USING AASHTO M164 BOLTS.
 - B. USE A HARDENED FLAT WASHER BETWEEN THE NUT AND THE CONNECTED PART.
 - C. USE HIGH STRENGTH BOLTS WITH DTI'S OR TENSION CONTROL INDICATORS INSTALLED PER SUBSECTION 506.03.07 OF THE STANDARD SPECIFICATIONS.
 - D. HOT-DIP GALVANIZE ALL STEEL PARTS IN ACCORDANCE WITH ASTM A153 (AASHTO M232).
 - E. HIGH STRENGTH BOLTS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C, OR MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50. WASHERS, NUTS, AND BOLTS IN ANY ASSEMBLY SHALL BE GALVANIZED BY THE SAME PROCESS. LUBRICATE THREADS WITH A DYED LUBRICANT.
6. WELDED CONNECTIONS
 - A. WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED ON THE PLANS.
 - B. WELD IN ACCORDANCE WITH SECTION 506 OF THE STANDARD SPECIFICATIONS.
 - C. USE ONLY WELDERS QUALIFIED ACCORDING TO ANSI/AASHTO/AWS D1.1-2000, SECTION 4 FOR THE TYPE OF JOINT, ELECTRODE, POSITION OF THE JOINT, AND THE MATERIAL THICKNESS.
 - D. USE ONLY PREQUALIFIED JOINTS.
 - E. TEST ALL FULL PENETRATION GROOVE WELDS ULTRASONICALLY IN ACCORDANCE WITH SECTION 6, PART F OF ANSI/AASHTO/AWS D1.1-2000. ACCEPT OR REJECT EACH WELD DISCONTINUITY ON THE BASIS OF ITS INDICATION RATING AND ITS LENGTH IN ACCORDANCE WITH SECTION 9.3.
 - F. HAVE ALL FILLET WELDS VISUALLY INSPECTED BY QUALIFIED PERSONNEL. ANY WELDS FOUND TO HAVE INCOMPLETE FUSION, OVERLAP OR CRACKS WILL BE REJECTED.
7. FOUNDATION: DRILLED SHAFT.
8. GROUND ALL STRUCTURES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
9. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.



K:\PHIX...Structure\Los Vegas\0922202_NDOT Package -D\Cadd\Vis--30\detector pole-01.dgn
B/7/2012
karthik.ramanathan

Designed By:	KR		
Detailed By:	MSK		
Checked By:	MDC		
	NO.	DESCRIPTION	DATE
		ISSUE RECORD	

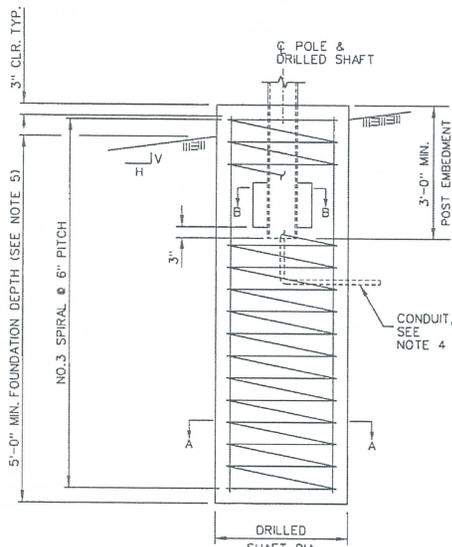
Call before you Dig
Call 811

FAST
Call before you dig
Underground
1-800-227-2688 1-702-432-5300 1-702-227-2929

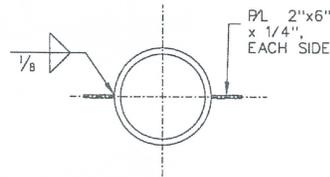
Kimley-Horn and Associates, Inc.
© 2012 KIMLEY-HORN AND ASSOCIATES, INC.
2080 E. FLAMINGO RD, SUITE 210
LAS VEGAS, NV 89115
PHONE: (702) 734-5666 FAX: (702) 735-4949

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
FAST PACKAGE D
30 FOOT DETECTOR POLE
(1 OF 2)

FED. RD. REG. NO.	STATE	PROJECT NO.	COUNTY	SHEET NO.
9	NEVADA	SPI-015-1(05B)	CLARK	ID-25A



DETAIL 1

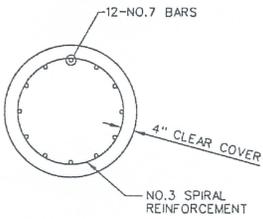


SECTION B-B

- SLIP BASE ASSEMBLY NOTES:
1. ALL PARTS AND HARDWARE SHALL BE GALVANIZED AS PER SECTION 715 OF THE NEVADA DOT STANDARD SPECIFICATIONS, EXCEPT AS NOTED.
 2. MULTI-DIRECTIONAL SLIP BASES ARE NOT REQUIRED BEHIND CONCRETE BARRIER RAIL OR BEHIND GUARDRAIL WHERE THE SIGN POST IS GREATER THAN 2'-6" FROM THE BACK SIDE OF THE GUARDRAIL POST.
 3. USE STANDARD WEIGHT PIPE FOR PIPE AND SLEEVE, SEE ASTM A53.
 4. FOR DETAILS ON SIGN LOCATION POST TYPE PANEL BRACING AND SIGN ISLANDS, SEE STANDARD PLAN T-31.1.1 THRU T-31.1.6.
 5. STIFFENER SHALL BE 2 1/2" X 2 1/2" X 3/8" ON BOTH SIDES OF SLIP BOLTS, TOP AND BOTTOM.

GENERAL NOTES:

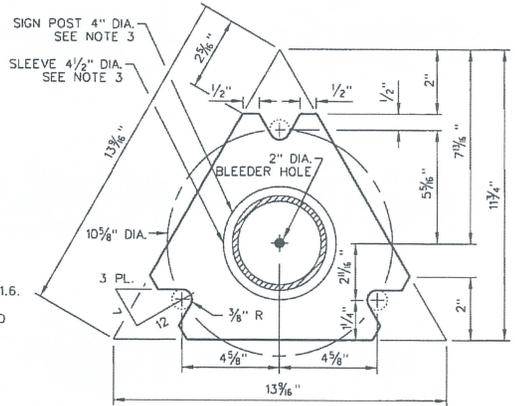
1. DRILLED SHAFT SHALL BE CLASS "S" PCC AS SPECIFIED IN THE SPECIAL PROVISIONS.
2. PILE SHALL BE FORMED 6" MIN. BELOW GROUND SURFACE. REMAINDER TO BE PLACED AGAINST UNDISTURBED MATERIAL.
3. IF NATIVE SOILS ARE DISTURBED PRIOR TO ERECTION OF THE POLE, BACKFILL WHICH IS EQUIVALENT TO THE SURROUNDING MATERIAL SHALL BE IN PLACE AND COMPACTED ACCORDING TO CONTRACT STANDARDS.
4. FOR NUMBER AND SIZE OF CONDUIT IN FOUNDATION, SEE ELECTRICAL PLAN SHEETS.
5. DEPTH OF FOUNDATION (DRILLED SHAFT) WILL BE MEASURED FROM THE LOWEST POINT ON FINISHED GRADE AND LENGTH OF PILE WILL CHANGE ACCORDINGLY.
6. TERMINATE NO. 3 SPIRAL REINFORCEMENT WITH 135 DEGREE HOOK AROUND MAIN VERTICAL REINFORCEMENT, WITH 1/2 TURNS @ TOP & BOTOTM.
7. IF SOIL CONSISTS OF ORGANICS OR SATURATED SILT AND CLAY, CONTACT ENGINEER BEFORE PLACING FOUNDATION.
8. BONDING AND GROUNDING SHALL MEET THE NATIONAL ELECTRIC CODE AND NDOT STANDARDS. SEE POLE GROUNDING DETAIL ON NDOT STANDARD PLAN T-30.1.16.
9. STRUCTURAL BOLTS AND OTHER STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M 232 (ASTM A 153).



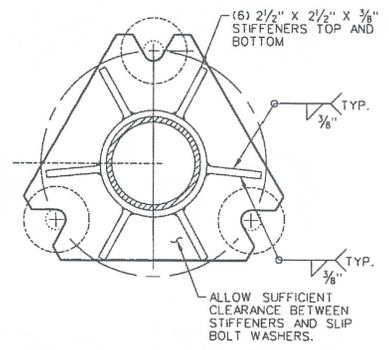
SECTION A-A

SOILS CONDITIONS (FLAT TO 2H:1V)					
SITE FOUNDATION MATERIAL	MINIMUM DRY UNIT WEIGHT (pcf)	INTERNAL FRICTION ANGLE (DEG)	P-Y MODULUS k _v (lb/in ³)	COHESION (psf)	STRAIN E ₅₀
CLAY	100	N/A	N/A	1000	0.007
SAND	100	30 (35*)	25	N/A	N/A

* IN CASE THE SLOPE OF 2H:1V TO 1.5H:1V



PLAN VIEW
TOP/BOTTOM PLATE
PLATE THICKNESS = 5/8"
NTS



TOP/BOTTOM PLATE
STIFFENER DETAIL
NTS



8/07/2012

K:\PHX_Structure\Las Vegas\092202_NDOT Package D\Cadd\1s-301\defector pole-02.dgn

8/7/2012

Designed By:	KR		
Detailed By:	MSK		
Checked By:	MDC		
	NO.	DESCRIPTION	DATE
		ISSUE RECORD	

Call before you dig
FAST
Call before you dig
Underground
1-800-227-2680
1-702-432-5380
1-702-227-2429

Kimley-Horn and Associates, Inc.
© 2012 KIMLEY-HORN AND ASSOCIATES, INC.
2080 E. FLAMINGO RD, SUITE 210
LAS VEGAS, NV 89119
PHONE: (702) 734-5686 FAX: (702) 735-4849

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
FAST PACKAGE D
30 FOOT DETECTOR POLE
DETAILS
(2 OF 2)

1.00" = 1' in. PLOT SCALE karthik.ramanathan



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: ITS POLE 20' 3" POST
Note: A separate form is required for each standard detail.

Previously used: Contract Number: _____ Contract Sheet Numbers: _____
Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: COST COMPARATIVE POLE
BRIDGE ACCEPTED

Requestor Information: Name: *Thomas A. Mure* Phone: 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

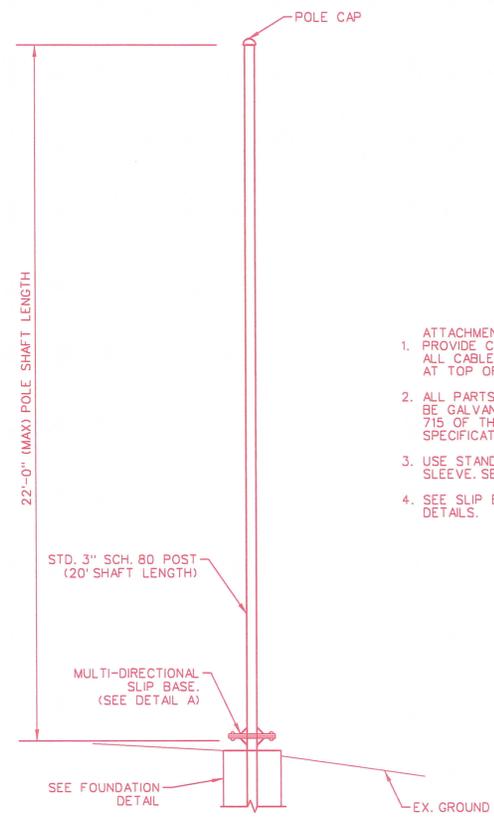
Notes: _____

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			

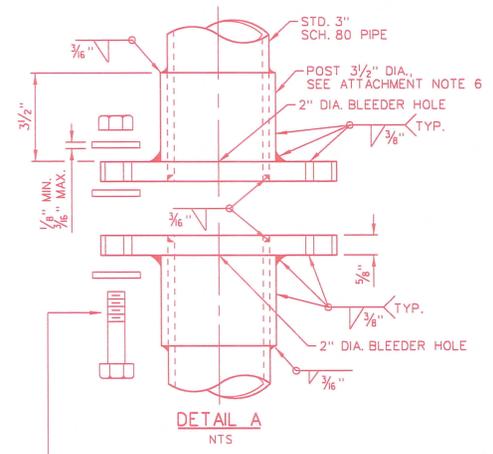
GENERAL NOTES:

- DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION 2009 WITH 2011 INTERIM REVISIONS.
- LOADING
 - IMPORTANCE FACTORS (If & Ir): 1.0
 - DRAG COEFFICIENT (Cd): 0.45 - 2.0 DEPENDING ON SHAPE OF MEMBER AND WIND VELOCITY
 - MAXIMUM WIND LOAD: 23.4 psf * Cd * I
 - NATURAL WIND GUSTS: 5.2 psf * Cd * I
 - WIND SPEED: 90 MPH
 - ICE LOAD: 3 psf
- STRUCTURAL STEEL
 - POLE MATERIAL IS ASTM A53 GRADE B STEEL (Fy = 35 Ksi).
 - HOT DIP GALVANIZE STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH ASTM A153.
 - HARDWARE SHALL BE GALVANIZED AS PER ASTM A153
- MATERIAL REQUIREMENTS
 - STRUCTURAL STEEL (OTHER THAN POST)(ASTM A36) : Fy = 36 ksi
 - DRILLED SHAFT: F'c = 4000 psi
 - REINFORCING STEEL : ASTM A615 GRADE 60

ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION 2010 ARTICLE 5.10. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.
- BOLTED CONNECTIONS.
 - ACCOMPLISH ALL STRUCTURAL HIGH STRENGTH BOLTING, USING AASHTO M164 BOLTS.
 - USE A HARDENED FLAT WASHER BETWEEN THE NUT AND THE CONNECTED PART.
 - USE HIGH STRENGTH BOLTS WITH DTI'S OR TENSION CONTROL INDICATORS INSTALLED PER SUBSECTION 506.03.07 OF THE STANDARD SPECIFICATIONS.
 - HOT-DIP GALVANIZE ALL STEEL PARTS IN ACCORDANCE WITH ASTM A153 (AASHTO M232).
 - HIGH STRENGTH BOLTS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C, OR MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50. WASHERS, NUTS, AND BOLTS IN ANY ASSEMBLY SHALL BE GALVANIZED BY THE SAME PROCESS. LUBRICATE THREADS WITH A DYED LUBRICANT.
- WELDED CONNECTIONS
 - WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED ON THE PLANS.
 - WELD IN ACCORDANCE WITH SECTION 506 OF THE STANDARD SPECIFICATIONS.
 - USE ONLY WELDERS QUALIFIED ACCORDING TO ANSI/AASHTO/AWS D11-2000, SECTION 4 FOR THE TYPE OF JOINT, ELECTRODE, POSITION OF THE JOINT, AND THE MATERIAL THICKNESS.
 - USE ONLY PREQUALIFIED JOINTS.
 - TEST ALL FULL PENETRATION GROOVE WELDS ULTRASONICALLY IN ACCORDANCE WITH SECTION 6, PART F OF ANSI/AASHTO/AWS D11-2000. ACCEPT OR REJECT EACH WELD DISCONTINUITY ON THE BASIS OF ITS INDICATION RATING AND ITS LENGTH IN ACCORDANCE WITH SECTION 9.3.
 - HAVE ALL FILLET WELDS VISUALLY INSPECTED BY QUALIFIED PERSONNEL. ANY WELDS FOUND TO HAVE INCOMPLETE FUSION, OVERLAP OR CRACKS WILL BE REJECTED.
- FOUNDATION: DRILLED SHAFT.
- GROUND ALL STRUCTURES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
- DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.



- ATTACHMENT NOTES:**
- PROVIDE CABLE STRAIN RELIEF FOR ALL CABLES. ATTACH TO "J" HOOK AT TOP OF POLE, WHEN PROVIDED.
 - ALL PARTS AND HARDWARE SHALL BE GALVANIZED AS PER SECTION 715 OF THE NDOT STANDARD SPECIFICATIONS, EXCEPT AS NOTED.
 - USE STANDARD WEIGHT PIPE FOR SLEEVE. SEE ASTM A 53.
 - SEE SLIP BASE TOP AND BOTTOM PLATE DETAILS.



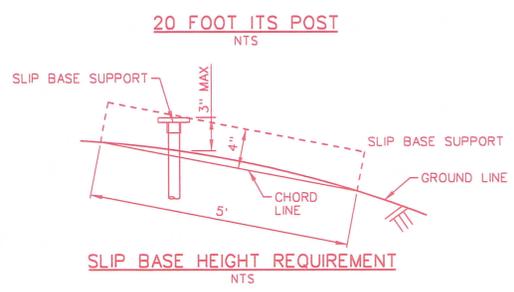
5/8"-11 x 3-1/8" BOLT, TYPE 1 ASTM A 325 OR TYPE 1 ASTM A 449 (GRADE 5); EACH WITH THREE USS THROUGH HARDENED WASHERS ASTM F 436 TYPE 1; AND ONE NYLON INSERT STOP NUT ASTM A 563 DH. ALL ITEMS SHALL BE GALVANIZED AS PER MANUFACTURER'S SPECIFICATIONS. TORQUE WITHIN THE RANGE OF 24-29 FT-LB. SEE BOLT DETAIL ON THIS SHEET.

n = A TYPICAL MANUFACTURER'S IDENTIFICATION



TYPE 1 ASTM A449 5/8" x 3-1/8" BOLT
 TYPE 1 ASTM A325 5/8" x 3-1/8" BOLT

TOP VIEW BOLT DETAIL

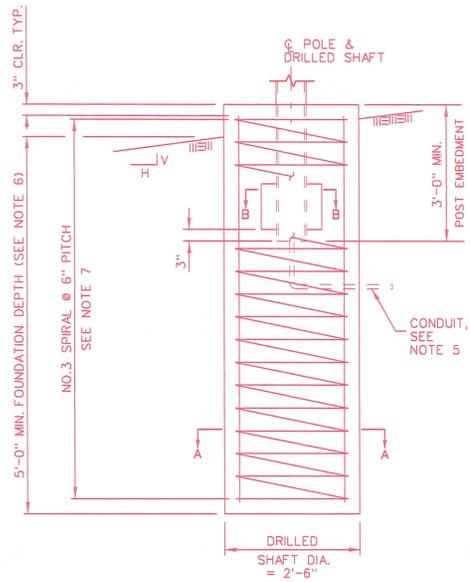


SHEET 1 OF 2

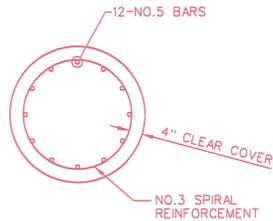
STATE OF NEVADA
 DEPARTMENT OF TRANSPORTATION

20 FOOT ITS 3 INCH POST

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			



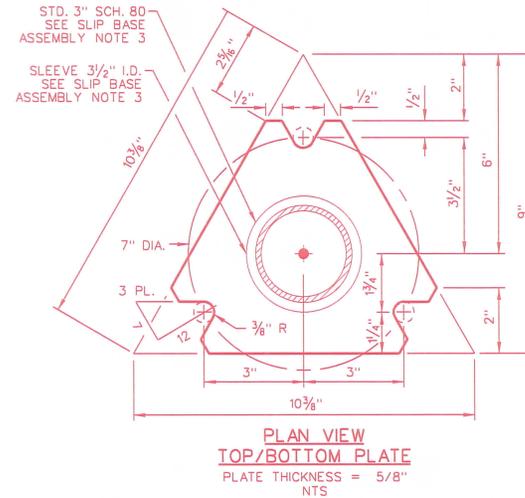
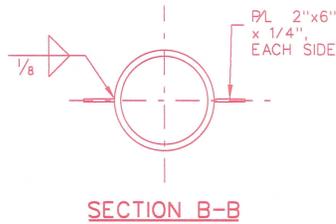
DETAIL 1



SECTION A-A

SOILS CONDITIONS (FLAT TO 2H:1V)					
SITE FOUNDATION MATERIAL	MINIMUM DRY UNIT WEIGHT (pcf)	INTERNAL FRICTION ANGLE (DEG)	P-Y MODULUS k, (lb/in ³)	COHESION (psf)	STRAIN E ₅₀
CLAY	100	N/A	N/A	1000	0.007
SAND	100	30 (35*)	25	N/A	N/A

* IN CASE THE SLOPE OF 2H:1V TO 1.5H:1V



SLIP BASE ASSEMBLY NOTES:

1. ALL PARTS AND HARDWARE SHALL BE GALVANIZED AS PER SECTION 715 OF THE NEVADA DOT STANDARD SPECIFICATIONS, EXCEPT AS NOTED.
2. MULTI-DIRECTIONAL SLIP BASES ARE NOT REQUIRED BEHIND CONCRETE BARRIER RAIL OR BEHIND GUARDRAIL WHERE THE SIGN POST IS GREATER THAN 2'-6" FROM THE BACK SIDE OF THE GUARDRAIL POST.
3. USE STANDARD WEIGHT PIPE FOR PIPE AND SLEEVE, SEE ASTM A53.
4. FOR DETAILS ON SIGN LOCATION POST TYPE PANEL BRACING AND SIGN ISLANDS, SEE STANDARD PLAN T-31.1.1 THRU T-31.1.6.
5. STIFFENER SHALL BE 2 1/2" x 2 1/2" x 3/8" ON BOTH SIDES OF SLIP BOLTS, TOP AND BOTTOM.

GENERAL NOTES:

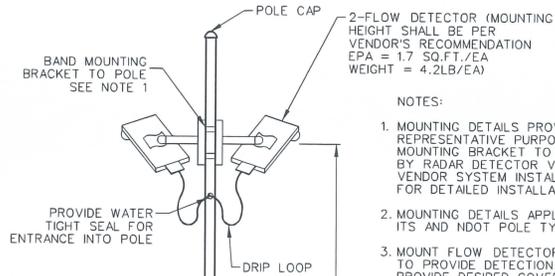
1. DRILLED SHAFT SHALL BE CLASS "S" PCC AS SPECIFIED IN THE SPECIAL PROVISIONS.
2. PRIOR TO ERECTION OF THE POLE, BACKFILL WHICH IS EQUIVALENT TO THE SURROUNDING MATERIAL SHALL BE IN PLACE AND COMPACTED ACCORDING TO CONTRACT STANDARDS.
3. PILE SHALL BE FORMED 6" MIN. BELOW GROUND SURFACE. REMAINDER TO BE PLACED AGAINST UNDISTURBED MATERIAL.
4. IF NATIVE SOILS ARE DISTURBED PRIOR TO ERECTION OF THE POLE, BACKFILL WHICH IS EQUIVALENT TO THE SURROUNDING MATERIAL SHALL BE IN PLACE AND COMPACTED ACCORDING TO CONTRACT STANDARDS.
5. FOR NUMBER AND SIZE OF CONDUIT IN FOUNDATION, SEE ELECTRICAL PLAN SHEETS.
6. DEPTH OF FOUNDATION (DRILLED SHAFT) WILL BE MEASURED FROM THE LOWEST POINT ON FINISHED GRADE AND LENGTH OF PILE WILL CHANGE ACCORDINGLY.
7. TERMINATE NO. 3 SPIRAL REINFORCEMENT WITH 135 DEGREE HOOK AROUND MAIN VERTICAL REINFORCEMENT, WITH 1/2 TURNS @ TOP & BOTTOM.
8. IF SOIL CONSISTS OF ORGANICS OR SATURATED SILT AND CLAY, CONTACT ENGINEER BEFORE PLACING FOUNDATION.
9. BONDING AND GROUNDING SHALL MEET THE NATIONAL ELECTRIC CODE AND NDOT STANDARDS. SEE POLE GROUNDING DETAIL ON NDOT STANDARD PLAN T-30.1.16.
10. STRUCTURAL BOLTS AND OTHER STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M 232 (ASTM A 153).

SHEET 2 OF 2

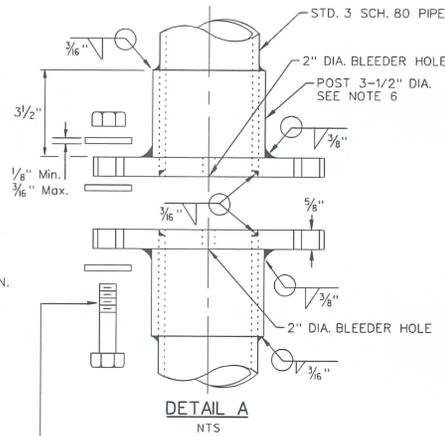
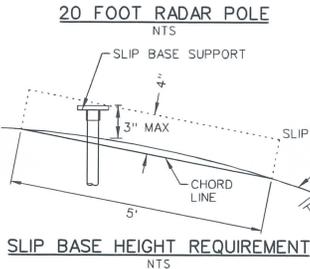
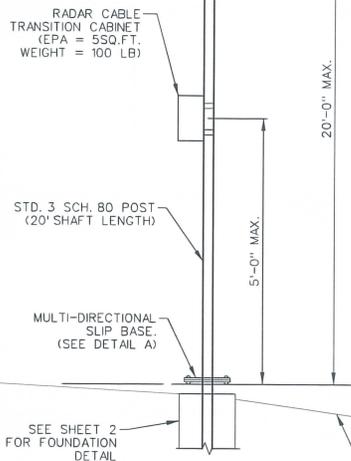
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

**20 FOOT ITS 3 INCH
POST**

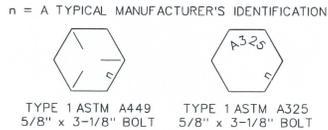
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			1



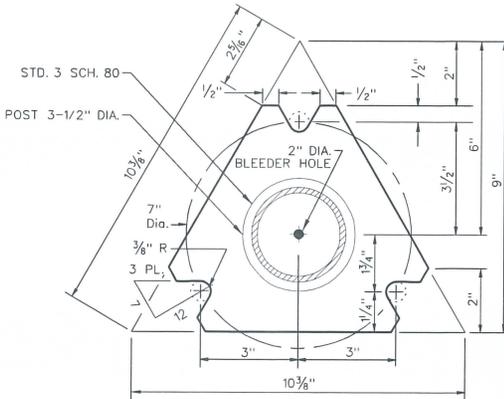
- NOTES:
1. MOUNTING DETAILS PROVIDED FOR REPRESENTATIVE PURPOSES, ACTUAL MOUNTING BRACKET TO BE PROVIDED BY RADAR DETECTOR VENDOR. SEE VENDOR SYSTEM INSTALLATION GUIDE FOR DETAILED INSTALLATION REQUIREMENTS.
 2. MOUNTING DETAILS APPLY TO ALL ITS AND NDOT POLE TYPES.
 3. MOUNT FLOW DETECTOR ASSEMBLIES TO PROVIDE DETECTION ZONES THAT PROVIDE DESIRED COVERAGE OF FREEWAY LANES PER MANUFACTURER'S RECOMMENDATION.
 4. PROVIDE CABLE STRAIN RELIEF FOR ALL CABLES, ATTACH TO "J" HOOK AT TOP OF POLE, WHEN PROVIDED.
 5. ALL PARTS AND HARDWARE SHALL BE GALVANIZED AS PER SECTION 715 OF THE NDOT STANDARD SPECIFICATIONS, EXCEPT AS NOTED.
 6. USE STANDARD WEIGHT PIPE FOR SLEEVE. SEE ASTM A 53.



5/8"-11 x 3 1/8" BOLT, TYPE 1 ASTM A 325 OR TYPE 1 ASTM A 449 (GRADE 5); EACH WITH THREE USS THROUGH HARDENED WASHERS ASTM F 436 TYPE 1; AND ONE NYLON INSERT STOP NUT ASTM A 563 DI. ALL ITEMS SHALL BE GALVANIZED AS PER MANUFACTURER'S SPECIFICATIONS. TORQUE WITHIN THE RANGE OF 24-29 FT-LB. SEE BOLT DETAIL ON THIS SHEET.



TOP VIEW BOLT DETAIL
NTS



PLAN VIEW TOP/BOTTOM PLATE
PLATE THICKNESS = 5/8"
NTS

GENERAL NOTES:

1. DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION 2009 WITH 2010 INTERIM REVISIONS.
2. LOADING
 - A. IMPORTANCE FACTORS (If & Ir): 1.0
 - B. DRAG COEFFICIENT (C): 0.45 - 2.0 DEPENDING ON SHAPE OF MEMBER AND WIND VELOCITY
 - C. MAXIMUM WIND LOAD: 23.4 psf * Cd * I
 - D. NATURAL WIND GUSTS: 5.2 psf * Cd * I
 - E. WIND SPEED: 90 MPH
 - F. ICE LOAD: 3 psf
3. STRUCTURAL STEEL
 - A. POLE MATERIAL IS ASTM A53 GRADE B STEEL.
 - B. HOT DIP GALVANIZE STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
 - C. HARDWARE SHALL BE GALVANIZED AS PER ASTM A153
4. MATERIAL REQUIREMENTS
 - A. STRUCTURAL STEEL : $F_y = 36$ ksi
 - B. DRILLED SHAFT-CONCRETE CLASS 5 $F'_c = 4000$ psi
 - C. REINFORCING STEEL : ASTM A615 GRADE 60

ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION 2010 ARTICLE 5.10. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.
5. BOLTED CONNECTIONS.
 - A. ACCOMPLISH ALL STRUCTURAL HIGH STRENGTH BOLTING, USING AASHTO M164 BOLTS.
 - B. USE A HARDENED FLAT WASHER BETWEEN THE NUT AND THE CONNECTED PART.
 - C. USE HIGH STRENGTH BOLTS WITH DT'S OR TENSION CONTROL INDICATORS INSTALLED PER SUBSECTION 506.03.07 OF THE STANDARD SPECIFICATIONS.
 - D. HOT-DIP GALVANIZE ALL STEEL PARTS IN ACCORDANCE WITH ASTM A153.
 - E. HIGH STRENGTH BOLTS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C, OR MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50. WASHERS, NUTS, AND BOLTS IN ANY ASSEMBLY SHALL BE GALVANIZED BY THE SAME PROCESS. LUBRICATE THREADS WITH A DYED LUBRICANT.
6. WELDED CONNECTIONS
 - A. WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED ON THE PLANS.
 - B. WELD IN ACCORDANCE WITH SECTION 506 OF THE STANDARD SPECIFICATIONS.
 - C. USE ONLY WELDERS QUALIFIED ACCORDING TO ANSI/AASHTO/AWS D11-2000, SECTION 4 FOR THE TYPE OF JOINT, ELECTRODE, POSITION OF THE JOINT, AND THE MATERIAL THICKNESS.
 - D. USE ONLY PREQUALIFIED JOINTS
 - E. TEST ALL FULL PENETRATION GROOVE WELDS ULTRASONICALLY IN ACCORDANCE WITH SECTION 6, PART F OF ANSI/AASHTO/AWS D11-2000. ACCEPT OR REJECT EACH WELD DISCONTINUITY ON THE BASIS OF ITS INDICATION RATING AND ITS LENGTH IN ACCORDANCE WITH SECTION 9.3.
 - F. HAVE ALL FILLET WELDS VISUALLY INSPECTED BY QUALIFIED PERSONNEL. ANY WELDS FOUND TO HAVE INCOMPLETE FUSION, OVERLAP OR CRACKS WILL BE REJECTED.
7. FOUNDATION: DRILLED SHAFT
8. GROUND ALL STRUCTURES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
9. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.

No.	DESCRIPTION	DATE
	ISSUE RECORD	

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

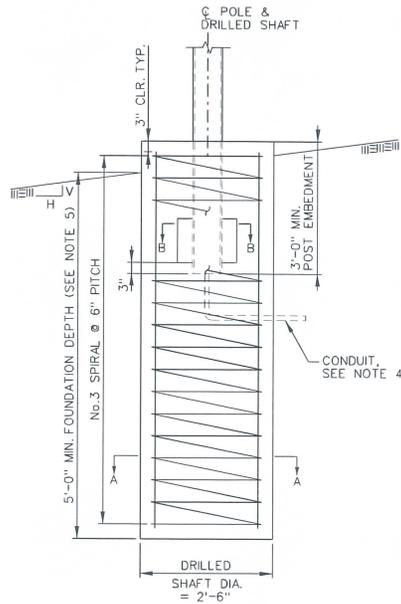
20 FOOT RADAR POLE

PRELIMINARY
SUBJECT TO REVISION
JANUARY 2012

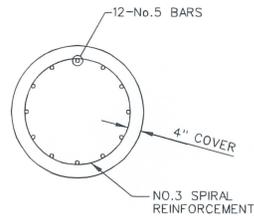
DESIGNED BY JL
DRAWN BY DJE
CHECKED BY PP
REVIEWED BY JAC

ATKINS
2270 Corporate Center Walk, 100
Fresno, CA 93720
Telephone: 559/261-1975
Fax: 559/261-2200

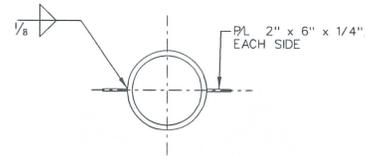
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			2



DETAIL 1



SECTION A-A



SECTION B-B

NOTES:

1. DRILLED SHAFT SHALL BE CLASS "S" PCC AS SPECIFIED IN THE SPECIAL PROVISIONS.
2. PRIOR TO ERECTION OF THE POLE, BACKFILL WHICH IS EQUIVALENT TO THE SURROUNDING MATERIAL SHALL BE IN PLACE AND COMPACTED ACCORDING TO CONTRACT STANDARDS.
3. PILE SHALL BE FORMED 6" MIN. BELOW GROUND SURFACE. REMAINDER TO BE PLACED AGAINST UNDISTURBED MATERIAL.
4. FOR NUMBER AND SIZE OF CONDUIT IN FOUNDATION, SEE ELECTRICAL PLAN SHEETS.
5. DEPTH OF FOUNDATION (DRILLED SHAFT) WILL BE MEASURED FROM THE LOWEST POINT ON FINISHED GRADE AND LENGTH OF PILE WILL CHANGE ACCORDINGLY.
6. TERMINATE NO. 3 SPIRAL REINFORCEMENT WITH 135 DEGREE HOOK AROUND MAIN VERTICAL REINFORCEMENT.
7. IF SOIL CONSISTS OF ORGANICS OR SATURATED SILT AND CLAY, CONTACT ENGINEER BEFORE PLACING FOUNDATION.
8. BONDING AND GROUNDING SHALL MEET THE NATIONAL ELECTRIC CODE AND NDOT STANDARDS. SEE POLE GROUNDING DETAIL ON NDOT STANDARD PLAN T-30.1.16.
9. STRUCTURAL BOLTS AND OTHER STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M 232 (ASTM A 153).

SOILS CONDITIONS (FLAT TO 2H:1V)					
SITE FOUNDATION MATERIAL	MINIMUM DRY UNIT WEIGHT (pcf)	INTERNAL FRICTION ANGLE (DEG)	P-Y MODULUS k.(lb/in ³)	COHESION (psf)	STRAIN E ₅₀
CLAY	100	N/A	N/A	1000	0.007
SAND	100	30 (35*)	25	N/A	N/A

* IN CASE THE SLOPE OF 2H:1V TO 1.5H:1V

No.	DESCRIPTION	DATE
	ISSUE RECORD	

PRELIMINARY SUBJECT TO REVISION JANUARY 2012	STATE OF NEVADA DEPARTMENT OF TRANSPORTATION 20 FOOT RADAR POLE DETAILS	DESIGNED BY <u>SL</u> DRAWN BY <u>DJE</u> CHECKED BY <u>PP</u> REVIEWED BY <u>JAC</u>
	ATKINS <small>2270 Corporate Drive Suite 100 Henderson, Nevada 89014 Telephone: 702/261-1225 Fax: 702/261-1226</small>	



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: ITS POLE 20' SOLAR PANEL

Note: A separate form is required for each standard detail.

Previously used: Contract Number: _____ Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: BRIDGE ACCEPTED, NOT USED IN
FIELD CURRENTLY. PART OF PERMANENT
WWS PROJECT EA 73860

Requestor Information: Name: [Signature] Phone: 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

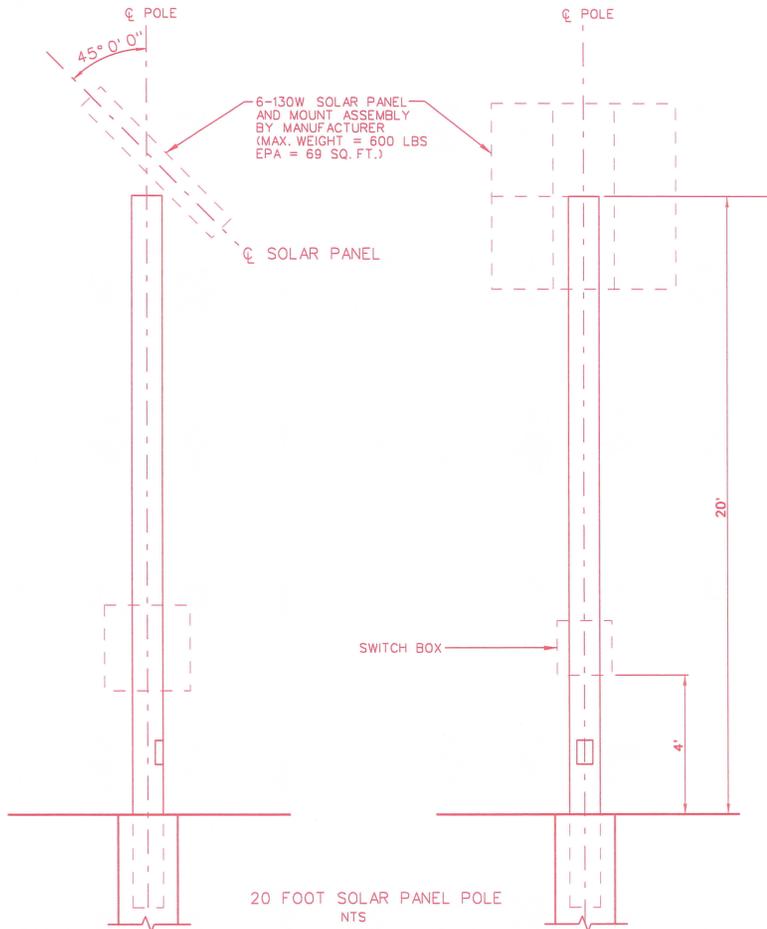
Reviewed by: Signature: _____ Date: _____

Notes: _____

PRELIMINARY

SUBJECT TO REVISION
 \$\$\$\$\$\$

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			



NOTES:

- DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION 2009 WITH 2010 INTERIM REVISIONS.
- LOADING
 - IMPORTANCE FACTORS (I_f & I_r): 1.0
 - DRAG COEFFICIENT (C): 0.45 - 2.0 DEPENDING ON SHAPE OF MEMBER AND WIND VELOCITY
 - MAXIMUM WIND LOAD: 23.4 psf * Cd * I
 - NATURAL WIND GUSTS: 5.2 psf * Cd * I
 - WIND SPEED: 90 MPH
 - ICE LOAD: 3 psf
 - FATIGUE CATEGORY: I
- STRUCTURAL STEEL
 - POLE MATERIAL IS ASTM A53 GRADE B STEEL.
 - STEEL TUBING SHALL CONFORM TO ASTM A500, GRADE C.
 - STEEL ANGLE SHALL CONFORM TO ASTM A36.
 - HOT DIP GALVANIZE STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
 - HARDWARE SHALL BE GALVANIZED AS PER ASTM A153
- MATERIAL REQUIREMENTS
 - STRUCTURAL STEEL : SEE ABOVE
 - DRILLED SHAFT: F_c = 4000 psi
 - REINFORCING STEEL : ASTM A615 GRADE 60

ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION 2010 ARTICLE 5.10. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.
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 - USE HIGH STRENGTH BOLTS WITH DTI'S OR TENSION CONTROL INDICATORS INSTALLED PER SUBSECTION 506.03.07 OF THE STANDARD SPECIFICATIONS.
 - HOT-DIP GALVANIZE ALL STEEL PARTS IN ACCORDANCE WITH ASTM A153 (AASHTO M232).
 - HIGH STRENGTH BOLTS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C, OR MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50. WASHERS, NUTS, AND BOLTS IN ANY ASSEMBLY SHALL BE GALVANIZED BY THE SAME PROCESS. DTI SHALL BE MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695. LUBRICATE THREADS WITH A DYED LUBRICANT.
- WELDED CONNECTIONS
 - WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED ON THE PLANS.
 - WELD IN ACCORDANCE WITH SECTION 506 OF THE STANDARD SPECIFICATIONS.
 - USE ONLY WELDERS QUALIFIED ACCORDING TO ANSI/AASHTO/AWS D1.1-2000, SECTION 4 FOR THE TYPE OF JOINT, ELECTRODE, POSITION OF THE JOINT, AND THE MATERIAL THICKNESS.
 - USE ONLY PREQUALIFIED JOINTS.
 - TEST ALL FULL PENETRATION GROOVE WELDS ULTRASONICALLY IN ACCORDANCE WITH SECTION 6, PART F OF ANSI/AASHTO/AWS D1.1-2000. ACCEPT OR REJECT EACH WELD DISCONTINUITY ON THE BASIS OF ITS INDICATION RATING AND ITS LENGTH IN ACCORDANCE WITH SECTION 9.3.
 - HAVE ALL FILLET WELDS VISUALLY INSPECTED BY QUALIFIED PERSONNEL. ANY WELDS FOUND TO HAVE INCOMPLETE FUSION, OVERLAP OR CRACKS WILL BE REJECTED
- FOUNDATION: DRILLED SHAFT, SEE 20 - FOOT SOLAR PANEL POLE DETAILS.
- GROUND ALL STRUCTURES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
- DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.

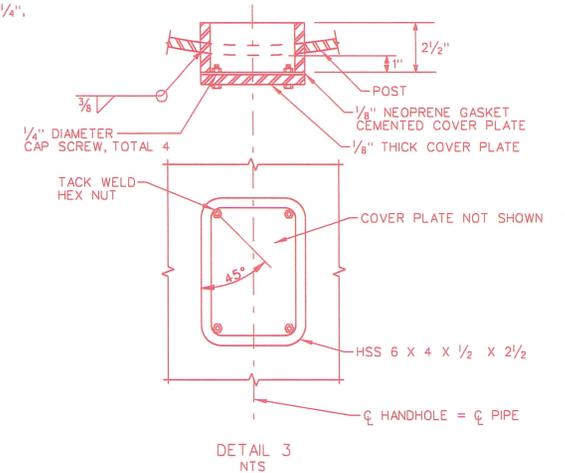
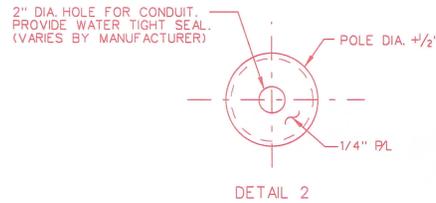
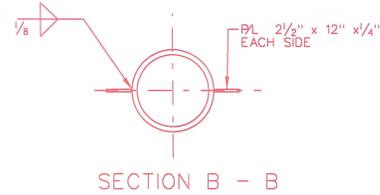
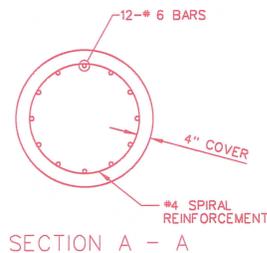
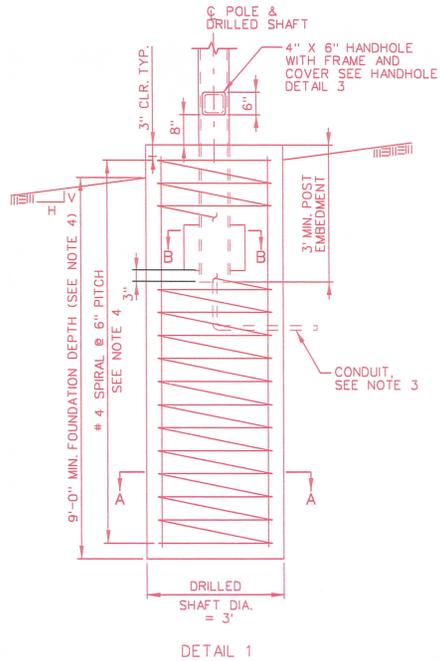
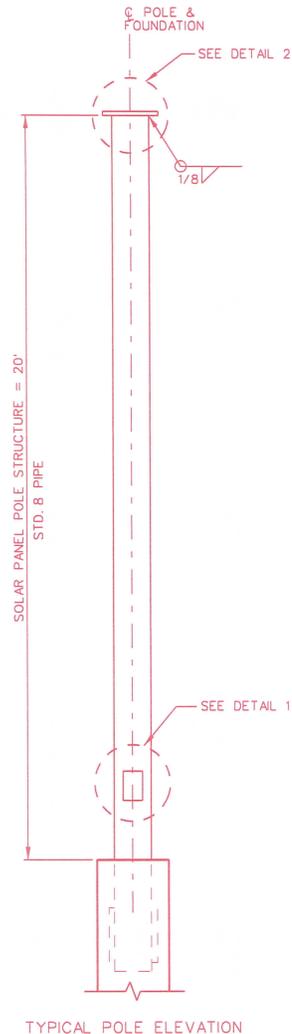
STATE OF NEVADA
 DEPARTMENT OF TRANSPORTATION

20 FOOT SOLAR
 PANEL POLE

PRELIMINARY

SUBJECT TO REVISION
5555dots555

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			



NOTES:

1. DRILLED SHAFT SHALL BE CONSTRUCTED ACCORDING TO SECTION 623 OF THE STANDARD SPECIFICATIONS.
2. PILE SHALL BE FORMED 6" MIN. BELOW GROUND SURFACE. REMAINDER TO BE PLACED AGAINST UNDISTURBED MATERIAL.
3. FOR NUMBER AND SIZE OF CONDUIT IN FOUNDATION, SEE ELECTRICAL PLAN SHEETS.
4. DEPTH OF FOUNDATION (DRILLED SHAFT) WILL BE MEASURED FROM THE LOWEST POINT ON FINISHED GRADE AND LENGTH OF PILE WILL CHANGE ACCORDINGLY.
5. TERMINATE NO. 3 SPIRAL REINFORCEMENT WITH 135 DEGREE HOOK AROUND MAIN VERTICAL REINFORCEMENT.
6. BEFORE PLACING THE FOUNDATION, CONTACT THE NDOT GEOTECHNICAL ENGINEERING SECTION FOR FURTHER INVESTIGATION WHEN THE FOLLOWING SOIL CONDITIONS: (A) SOILS WITH HIGH ORGANIC CONTENT; (B) THE SITE CANNOT SUPPORT THE DRILL RIG; OR (C) FIRM BEDROCK IS ENCOUNTERED.
7. BONDING AND GROUNDING SHALL MEET THE NATIONAL ELECTRIC CODE AND NDOT STANDARDS. SEE POLE GROUNDING DETAIL ON NDOT STANDARD PLAN T-30.1.16.
8. STRUCTURAL BOLTS AND OTHER STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 153 (AASHTO M 232).

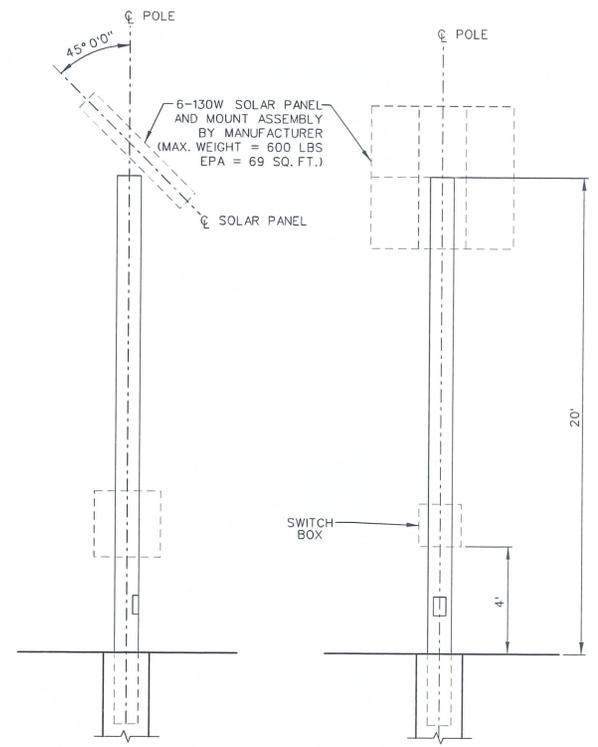
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

20 FOOT SOLAR
PANEL POLE
DETAIL

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			1

GENERAL NOTES:

1. DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION 2009 WITH 2010 INTERIM REVISIONS.
2. LOADING
 - A. IMPORTANCE FACTORS (I_f & I_r): 1.0
 - B. DRAG COEFFICIENT (C_d): 0.45 - 2.0 DEPENDING ON SHAPE OF MEMBER AND WIND VELOCITY
 - C. MAXIMUM WIND LOAD: 23.4 psf * Cd * I
 - D. NATURAL WIND GUSTS: 5.2 psf * Cd * I
 - E. WIND SPEED: 90 MPH
 - F. ICE LOAD: 3 psf
3. STRUCTURAL STEEL
 - A. POLE MATERIAL IS ASTM A53 GRADE B STEEL.
 - B. STEEL TUBING SHALL CONFORM TO ASTM A500, GRADE C.
 - C. STEEL ANGLE SHALL CONFORM TO ASTM A36.
 - D. HOT DIP GALVANIZE STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
 - E. HARDWARE SHALL BE GALVANIZED AS PER ASTM A153
4. MATERIAL REQUIREMENTS
 - A. STRUCTURAL STEEL : SEE ABOVE
 - B. DRILLED SHAFT-CONCRETE CLASS S F'c= 4000 psi
 - C. REINFORCING STEEL : ASTM A615 GRADE 60
ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION 2010 ARTICLE 5.10. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.
5. BOLTED CONNECTIONS.
 - A. ACCOMPLISH ALL STRUCTURAL HIGH STRENGTH BOLTING, USING AASHTO M164 BOLTS.
 - B. USE A HARDENED FLAT WASHER BETWEEN THE NUT AND THE CONNECTED PART.
 - C. USE HIGH STRENGTH BOLTS WITH DTIS OR TENSION CONTROL INDICATORS INSTALLED PER SUBSECTION 506.03.07 OF THE STANDARD SPECIFICATIONS.
 - D. HOT-DIP GALVANIZE ALL STEEL PARTS IN ACCORDANCE WITH ASTM A153.
 - E. HIGH STRENGTH BOLTS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C, OR MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50. WASHERS, NUTS, AND BOLTS IN ANY ASSEMBLY SHALL BE GALVANIZED BY THE SAME PROCESS. LUBRICATE THREADS WITH A DYED LUBRICANT.
6. WELDED CONNECTIONS
 - A. WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED ON THE PLANS.
 - B. WELD IN ACCORDANCE WITH SECTION 506 OF THE STANDARD SPECIFICATIONS.
 - C. USE ONLY WELDERS QUALIFIED ACCORDING TO ANSI/AASHTO/AWS D1.1-2000, SECTION 4 FOR THE TYPE OF JOINT, ELECTRODE, POSITION OF THE JOINT, AND THE MATERIAL THICKNESS.
 - D. USE ONLY PREQUALIFIED JOINTS.
 - E. TEST ALL FULL PENETRATION GROOVE WELDS ULTRASONICALLY IN ACCORDANCE WITH SECTION 6, PART F OF ANSI/AASHTO/AWS D1.1-2000. ACCEPT OR REJECT EACH WELD DISCONTINUITY ON THE BASIS OF ITS INDICATION RATING AND ITS LENGTH IN ACCORDANCE WITH SECTION 9.3.
 - F. HAVE ALL FILLET WELDS VISUALLY INSPECTED BY QUALIFIED PERSONNEL. ANY WELDS FOUND TO HAVE INCOMPLETE FUSION, OVERLAP OR CRACKS WILL BE REJECTED.
7. FOUNDATION: DRILLED SHAFT
8. GROUND ALL STRUCTURES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
9. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.

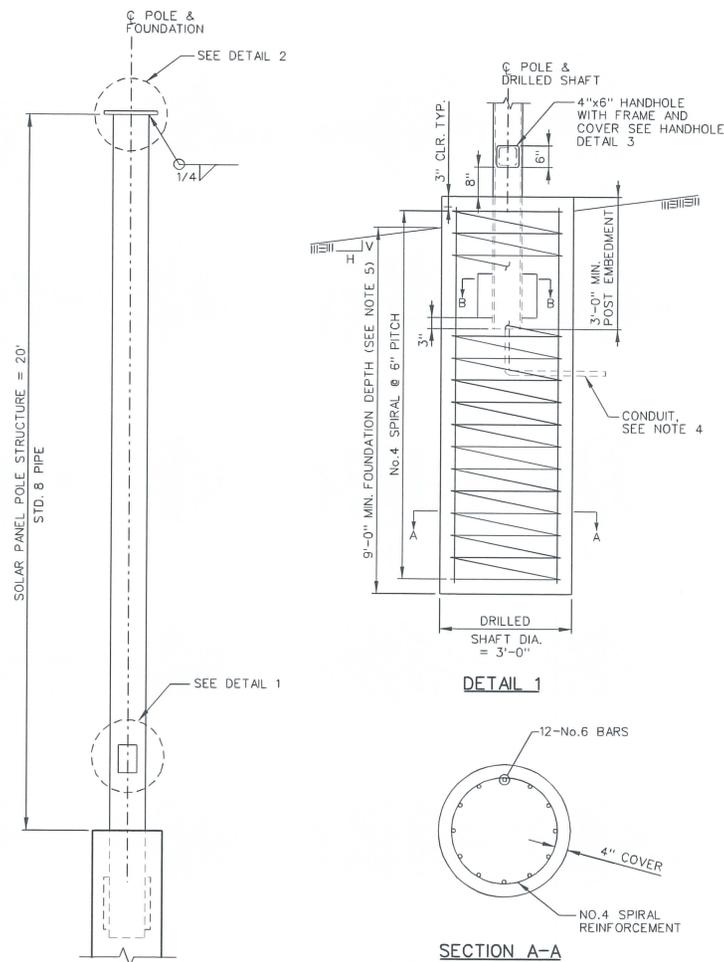


20 FOOT SOLAR PANEL POLE
NTS

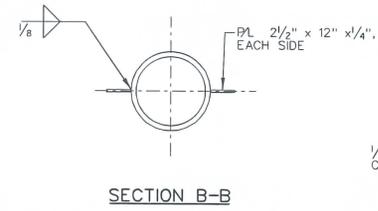
No.	DESCRIPTION	DATE
	ISSUE RECORD	

STATE OF NEVADA DEPARTMENT OF TRANSPORTATION	
20 FOOT SOLAR PANEL POLE	
PRELIMINARY SUBJECT TO REVISION DECEMBER 2011	
	2210 Corporate Center, Suite 110 Henderson, Nevada 89014 Telephone: 702/251-7275 Fax: 702/251-7226
	DESIGNED BY <u>JL</u> DRAWN BY <u>DJE</u> CHECKED BY <u>PP</u> REVIEWED BY <u>JAC</u>

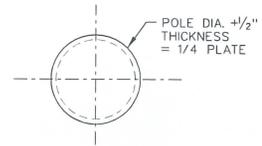
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			2



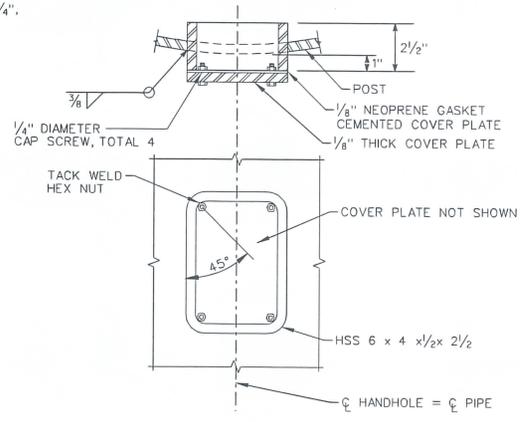
TYPICAL POLE ELEVATION



SECTION B-B



DETAIL 2



DETAIL 3
NTS

- NOTES:
1. DRILLED SHAFT SHALL BE CLASS "S" PCC AS SPECIFIED IN THE SPECIAL PROVISIONS.
 2. PRIOR TO ERECTION OF THE POLE, BACKFILL WHICH IS EQUIVALENT TO THE SURROUNDING MATERIAL SHALL BE IN PLACE AND COMPACTED ACCORDING TO CONTRACT STANDARDS.
 3. PILE SHALL BE FORMED 6" MIN. BELOW GROUND SURFACE. REMAINDER TO BE PLACED AGAINST UNDISTURBED MATERIAL.
 4. FOR NUMBER AND SIZE OF CONDUIT IN FOUNDATION, SEE ELECTRICAL PLAN SHEETS.
 5. DEPTH OF FOUNDATION (DRILLED SHAFT) WILL BE MEASURED FROM THE LOWEST POINT ON FINISHED GRADE AND LENGTH OF PILE WILL CHANGE ACCORDINGLY.
 6. TERMINATE NO. 4 SPIRAL REINFORCEMENT WITH 135 DEGREE HOOK AROUND MAIN VERTICAL REINFORCEMENT.
 7. IF SOIL CONSISTS OF ORGANICS OR SATURATED SILT AND CLAY, CONTACT ENGINEER BEFORE PLACING FOUNDATION.
 8. BONDING AND GROUNDING SHALL MEET THE NATIONAL ELECTRIC CODE AND NDOT STANDARDS. SEE POLE GROUNDING DETAIL ON NDOT STANDARD PLAN T-30.1.16.
 9. STRUCTURAL BOLTS AND OTHER STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M 232 (ASTM A 153).

No.	DESCRIPTION	DATE
	ISSUE RECORD	

SOILS CONDITIONS (FLAT TO 2H:1V)					
SITE FOUNDATION MATERIAL	MINIMUM DRY UNIT WEIGHT (pcf)	INTERNAL FRICTION ANGLE (DEG)	p-y MODULUS k (lb/in ³)	COHESION (psf)	STRAIN E ₅₀
CLAY	100	N/A	N/A	1000	0.007
SAND	100	30 (35*)	25	N/A	N/A

* IN CASE THE SLOPE OF 2H:1V TO 1.5H:1V

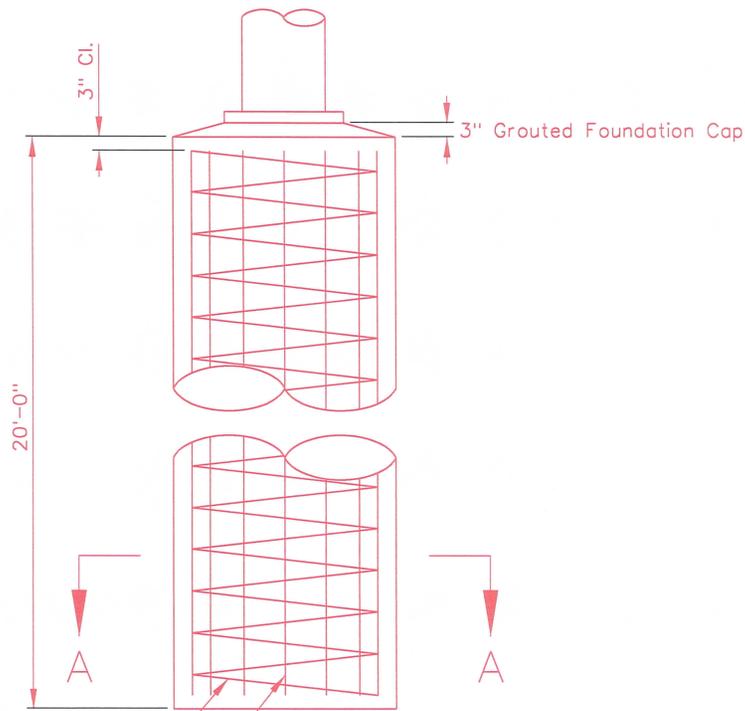
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

20 FOOT SOLAR PANEL POLE DETAILS

PRELIMINARY
SUBJECT TO REVISION
DECEMBER 2011

ATKINS
2276 Corporate Center Suite 110
Fremont, Nevada 89124
Telephone: 702.784.7275
Fax: 702.783.7292

DESIGNED BY: JAC
DRAWN BY: DJE
CHECKED BY: PP
REVIEWED BY: JAC

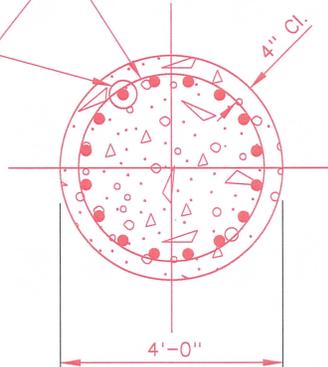


4 - 2 1/4" x 80" x 9" Galv. Anchor Bolts
w/ (2) - Galv. Hex Nuts & (2) Galv. Flat Washers per Bolt



No. 4 Spiral 6" Pitch, Ending With a 180° Hook. Laps Shall Overlap 1 1/2 Turns and End With a 180° Hook.

16 - No. 9 Bars Equally Spaced



Note: Concrete Shall Be Class A or AA.

SECTION A-A
PILE FOUNDATION

STATE OF NEVADA DEPARTMENT OF TRANSPORTATION		
PILE FOUNDATION TYPE 30A and 35A DETAILS FOR 60 - 85' MAST ARM		
DET. • (000)	Signed Original On File	
ADOPTED	REVISED	CHIEF SAFETY/TRAFFIC ENGR.



2014 Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: HAIR SITE WITH AC/SOLAR POWER AND GROUND POLE MOUNTED CABINETS, SERVICE, WOUNDING AND DETAILS

Note: A separate form is required for each standard detail.

Previously used: Contract Number: N/A Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: THIS WILL SIGNIFICANTLY ASSIST TRAFFIC OPERATIONS MOVING FORWARD TO STANDARDIZE THE DEPARTMENTS HAIR SITE INSTALLATIONS.

Requestor Information: Name: Tom Moore Phone: 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

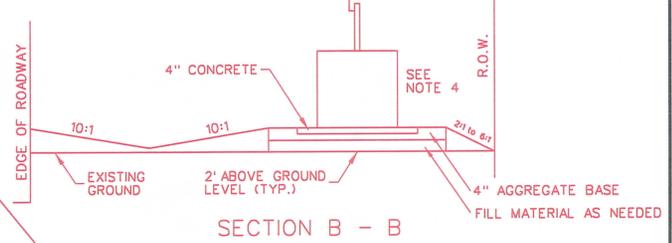
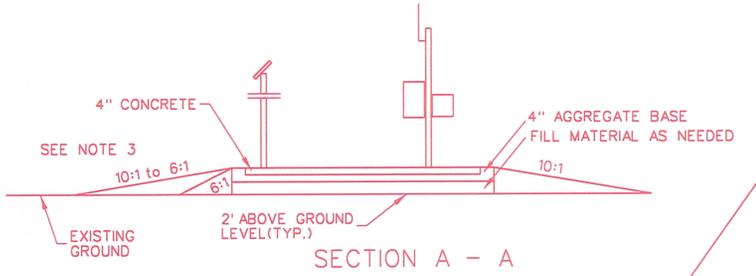
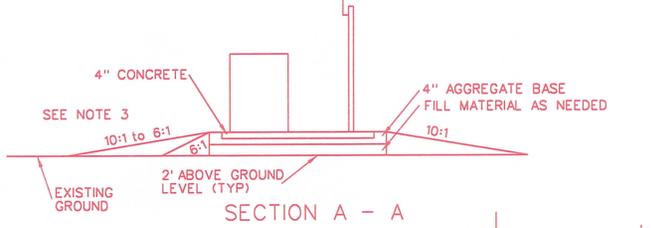
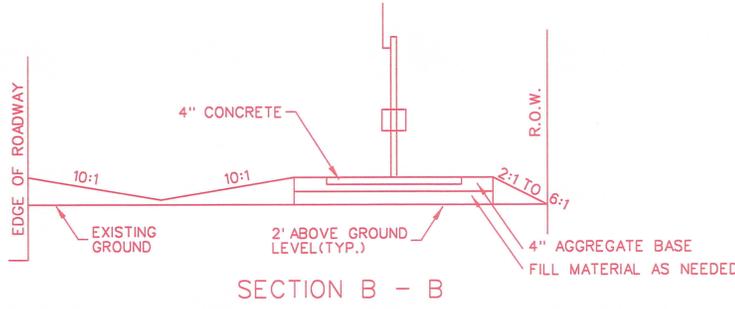
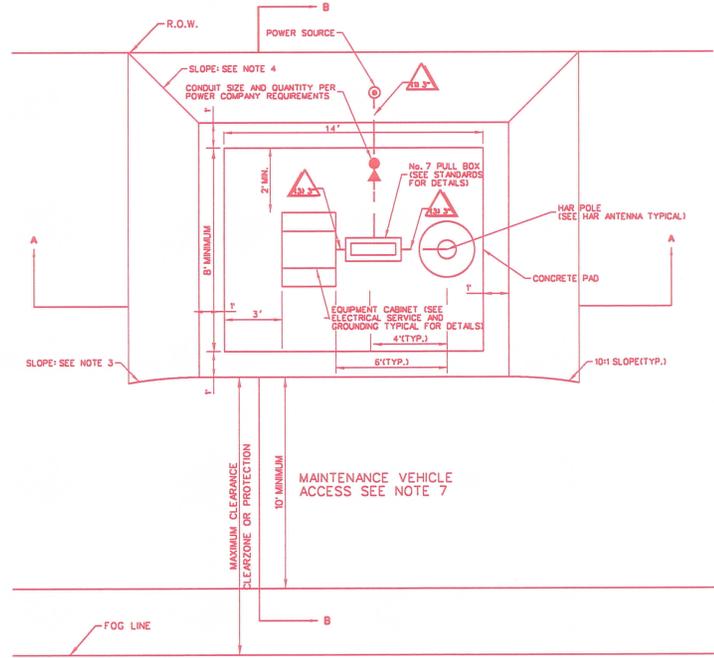
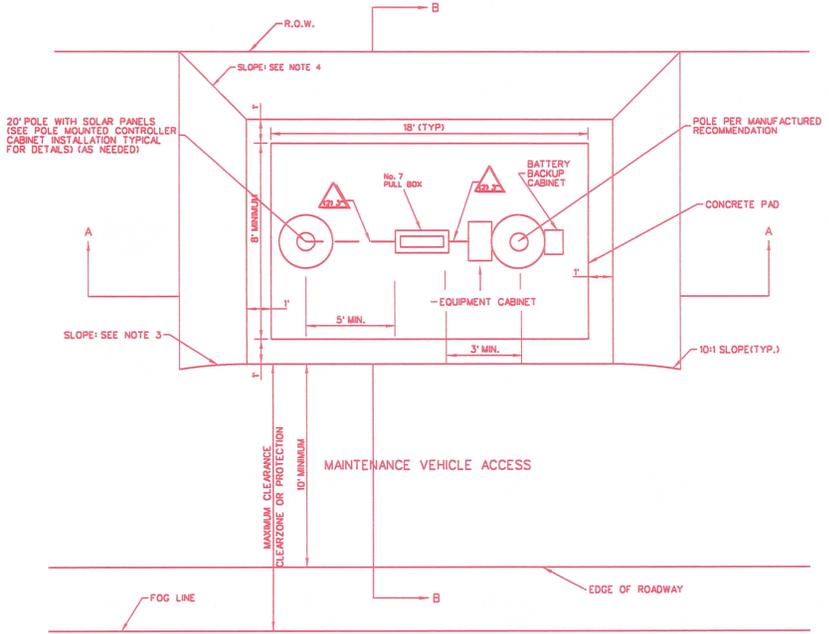
Created by: _____ Signature: _____ Date: _____

Policy Review:

CADD Standards ASTM AASHTO Design Manual Specifications

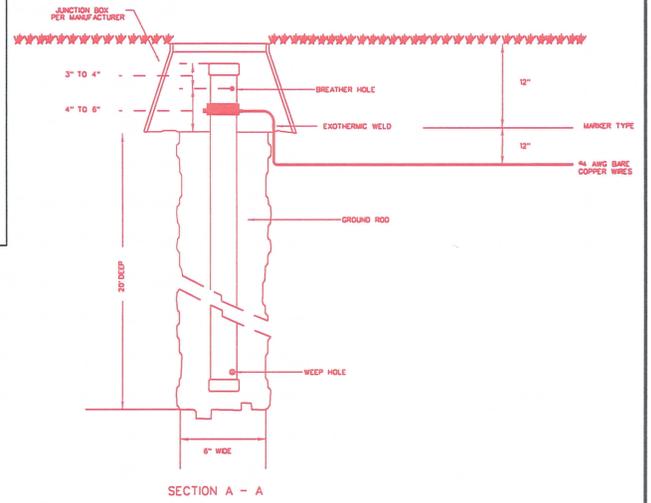
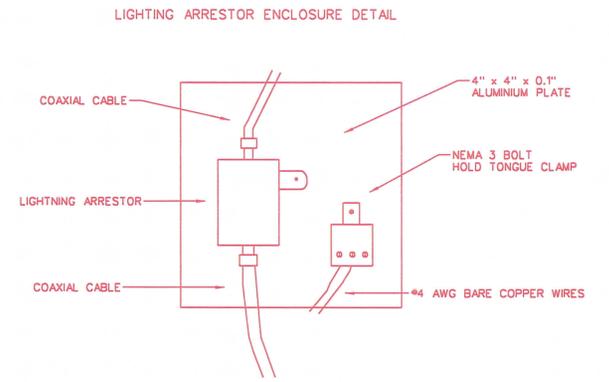
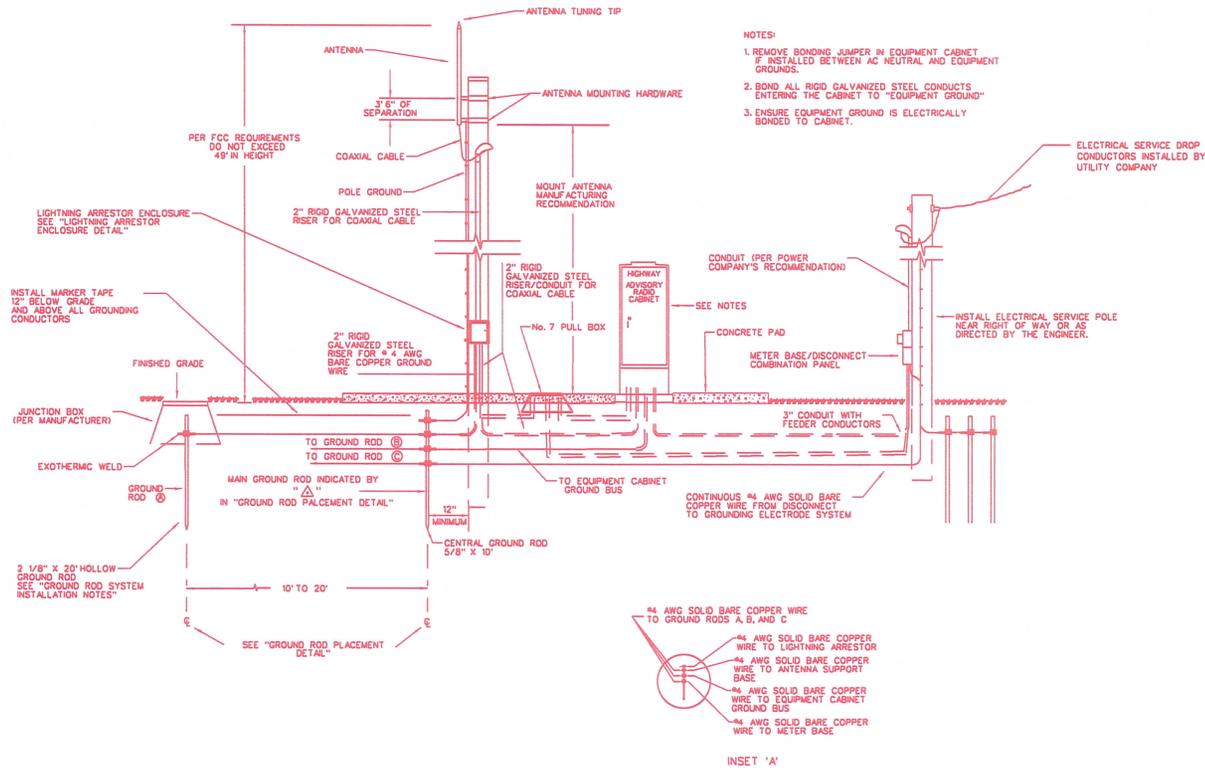
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Notes: _____



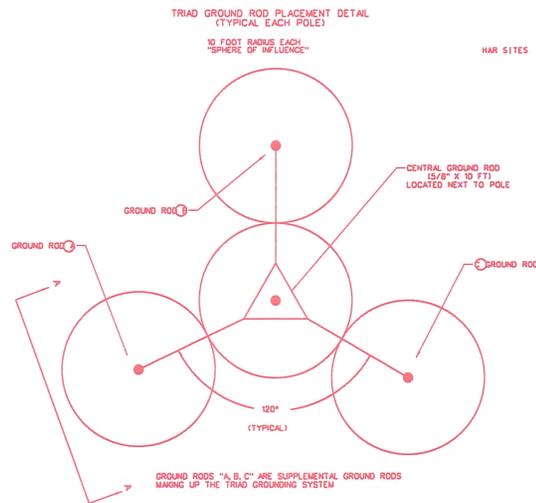
- NOTES:
1. CONCRETE SHALL BE CLASS A OR AA.
 2. ALL EQUIPMENT TO BE INSTALLED TO MANUFACTURER RECOMMENDATIONS.
 3. UNDIVIDED ROUTES USE 10:1. ALL DIVIDED ROUTES USE 6:1.
 4. USE 2:1 MAX FOR NARROW RIGHT-OF-WAYS OR 6:1 PREFERRED FOR ALL OTHERS.
 5. SITE PLACEMENT SHALL AVOID DRAINAGE FEATURES.
 6. MAINTENANCE VEHICLE ACCESS COMPOSED OF 6" AGGREGATE BASE, GRINDING, OR EQUIVALENT

STATE OF NEVADA DEPARTMENT OF TRANSPORTATION		
HAR SITE WITH AC/SOLAR POWER AND GROUND/POLE MOUNTED CABINETS		
DET. *	(000)	Signed Original On File
ADOPTED	REVISED	CHIEF SAFETY/TRAFFIC ENGR.



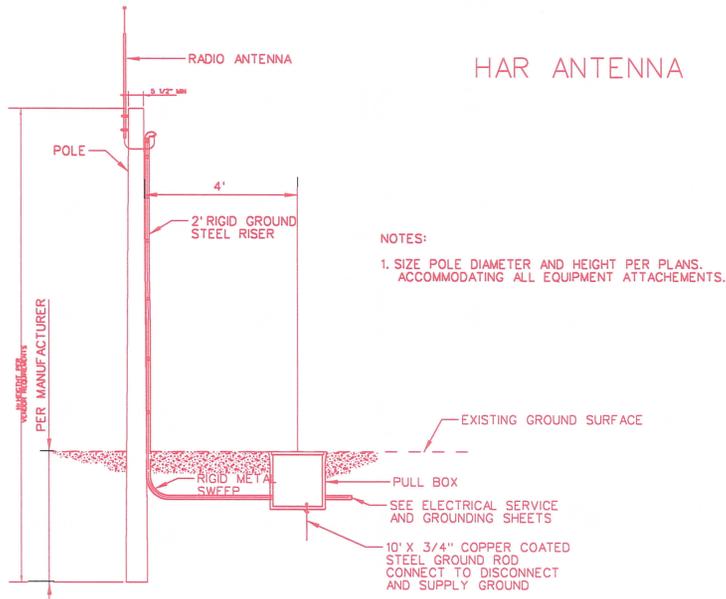
SUPPLEMENTAL GROUND ROD SYSTEM INSTALLATION NOTES

1. AUGER A 6" WIDE BY 20" DEEP HOLE FOR GROUND ROD PLACEMENT.
2. REMOVE PROTECTIVE TAPE AT THE BOTTOM OF THE GROUND ROD PRIOR TO INSTALLING GROUND ROD IN AUGERED HOLE.
3. INSTALL GROUND ROD (2 1/8" BY 20") HOLLOW TUBE, TYPE "K" COPPER, WITH 0.083 WALL THICKNESS.
4. FILL VOID AROUND OUTSIDE OF GROUND ROD WITH BENTONITE CLAY SLURRY.
5. REMOVE PROTECTIVE TAPE AT THE TOP OF THE GROUND ROD ONCE THE BENTONITE CLAY SLURRY IS INSTALLED.
6. FILL INSIDE OF HOLLOW GROUND ROD WITH NON-HAZARDOUS CALSOLYLE MIXTURE.
7. EXOTHERMICALLY WELD PIGTAIL TO #4 AWG BARE COPPER WIRE.
8. INSTALL JUNCTION BOX (STANDARD SIZE) OVER TOP OF GROUND ROD.
9. TEST GROUND ROD SYSTEM IN ACCORDANCE WITH HAR SYSTEM REQUIREMENTS.
10. SYSTEM TO BE INSTALLED PER MANUFACTURERS RECOMMENDATION.



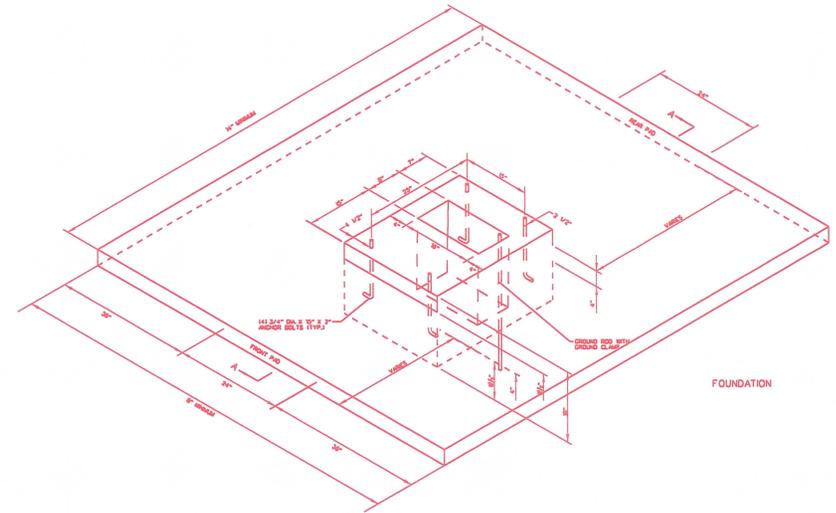
STATE OF NEVADA DEPARTMENT OF TRANSPORTATION		
ELECTRICAL SERVICE AND GROUNDING		
DET. #	(000)	Signed Original On File
ADOPTED	REVISED	CHIEF SAFETY/TRAFFIC ENGR.

T-X



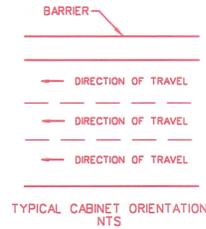
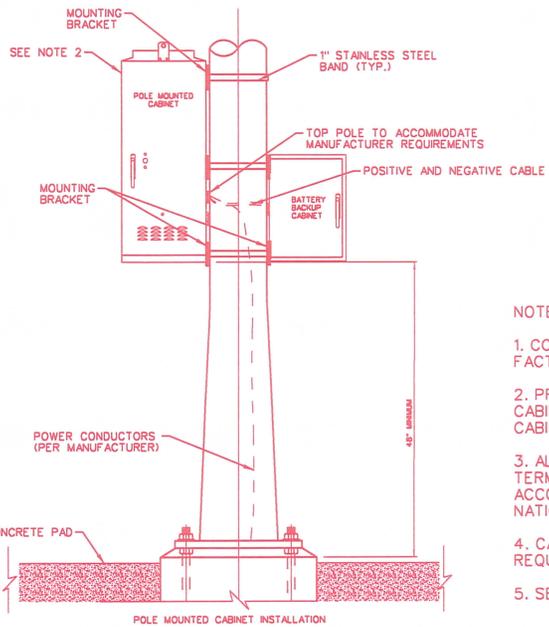
NOTES:
 1. SIZE POLE DIAMETER AND HEIGHT PER PLANS, ACCOMMODATING ALL EQUIPMENT ATTACHEMENTS.

HAR CABINET FOUNDATION

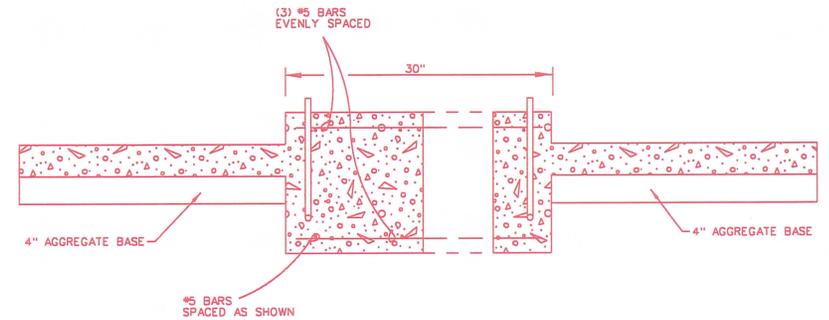


NOTES:
 1. CONCRETE SHALL BE CLASS A OR AA.
 2. ROUGH BROOM TEXTURE ON FRONT AND REAR PADS.
 3. INSTALL GROUND ROD WIRE CONDUIT IN ALL CABINET FOUNDATIONS. GROUND ROD WIRE CONDUIT TO BE USED WHEN AN ADDITIONAL GROUND ROD IS REQUIRED.
 4. CONCRETE PAD MAY BE EXTENDED LENGTHWISE TO INCLUDE POLES AND/OR PULLBOXES AS NECESSARY.

POLE MOUNTED CONTROLLER CABINET INSTALLATION



NOTES:
 1. CONDUIT HOLES IN CABINET MAY BE FIELD DRILLED OR FACTORY DRILLED.
 2. PROVIDE PER MANUFACTURER REQUIREMENTS CABINET, MOUNTING BRACKETS AND WIRING DETAILS. ALL OTHER CABINETS TO BE CONTRACTOR FURNISHED.
 3. ALL GROUND WIRES ENTERING THE CABINET SHALL BE TERMINATED ON THE GROUNDING LUG. GROUNDING SHALL BE IN ACCORDANCE WITH NDOT STANDARD SPECIFICATIONS AND THE NATIONAL ELECTRIC CODE.
 4. CABINET TYPE MAY VARY DEPENDING ON INSTALLATION REQUIREMENTS.
 5. SEE CABINET IDENTIFICATION CODE DETAILS.



SECTION A - A

STATE OF NEVADA DEPARTMENT OF TRANSPORTATION		
HAR DETAILS		
DET. • (000)	Signed Original On File	
ADOPTED •/••	REVISED •/••	CHIEF SAFETY/TRAFFIC ENGR.

X-1



2014 Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

**NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712**

Detail Name: RWIS SITE WITH AC AND SOLAR POWER

Note: A separate form is required for each standard detail.

Previously used: Contract Number: N/A Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: DETAIL BEING INCORPORATED WITH CARSON CITY BYPASS 2B-3 PROJECT. WILL BECOME STANDARD FOR TRAFFIC OPERATIONS TO ASSISTANCE TO FOUR RWIS SITE INSTALLATIONS STATEWIDE.

Requestor Information: Name: [Signature] Phone: 1/12/15

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: _____ Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

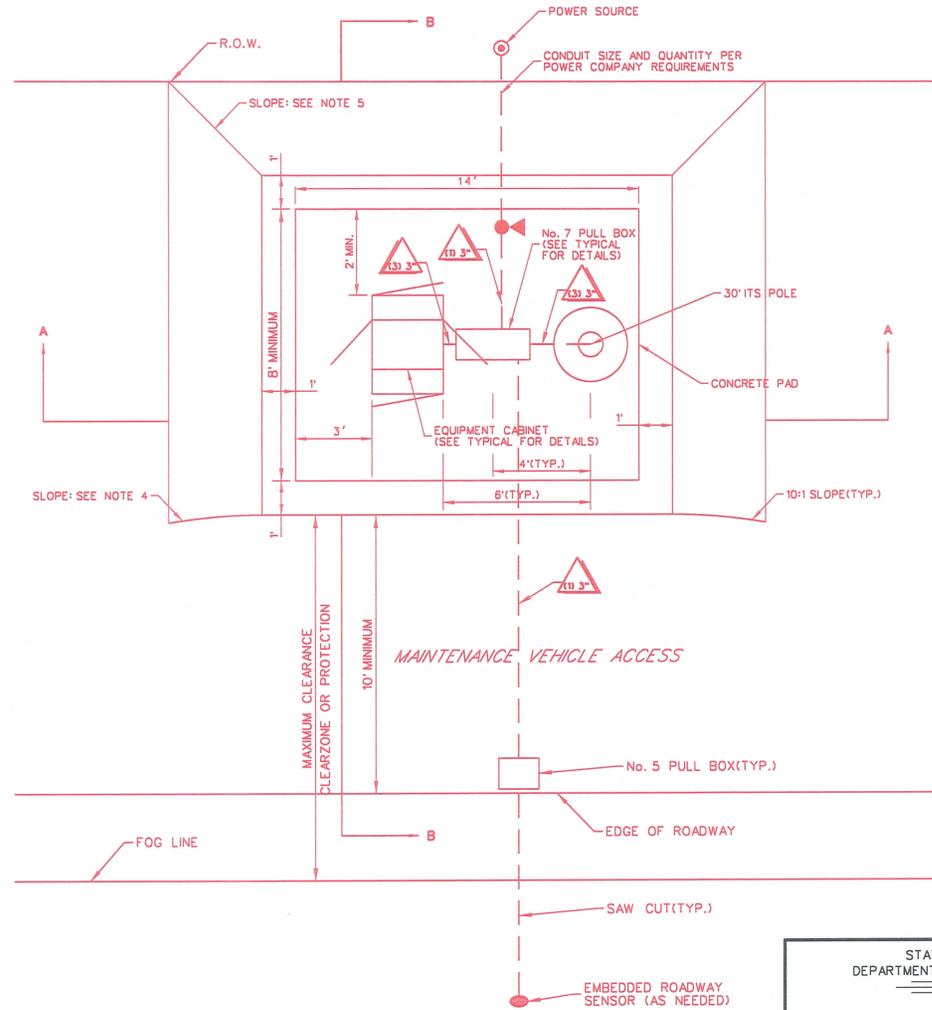
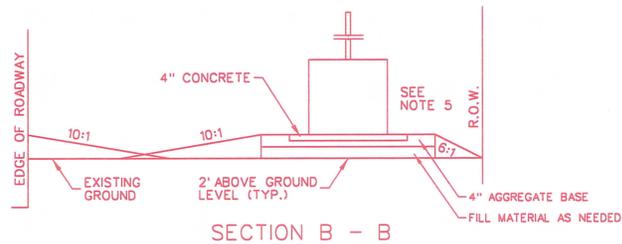
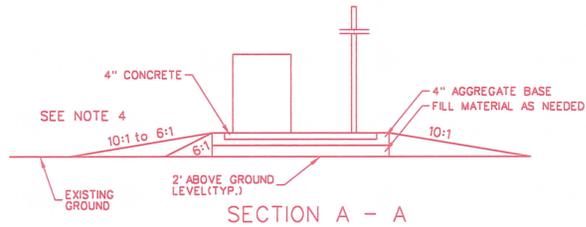
Reviewed by: _____ Signature: _____ Date: _____

Notes: _____

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			RWIS

NOTES:

1. CONCRETE SHALL BE CLASS A OR AA.
2. ALL EQUIPMENT TO BE INSTALLED TO MANUFACTURER RECOMMENDATIONS.
3. SEE ITEM TYPICALS FOR DETAILS.
4. UNDIVIDED ROUTES USE 10:1. ALL DIVIDED ROUTES USE 6:1.
5. USE 2:1 MAX FOR NARROW RIGHT-OF-WAYS OR 6:1 PREFERRED FOR ALL OTHERS.
6. SITE PLACEMENT SHALL AVOID DRAINAGE FEATURES.
7. MAINTENANCE VEHICLE ACCESS COMPOSED OF 6" AGGREGATE BASE, GRINDING, OR EQUIVALENT



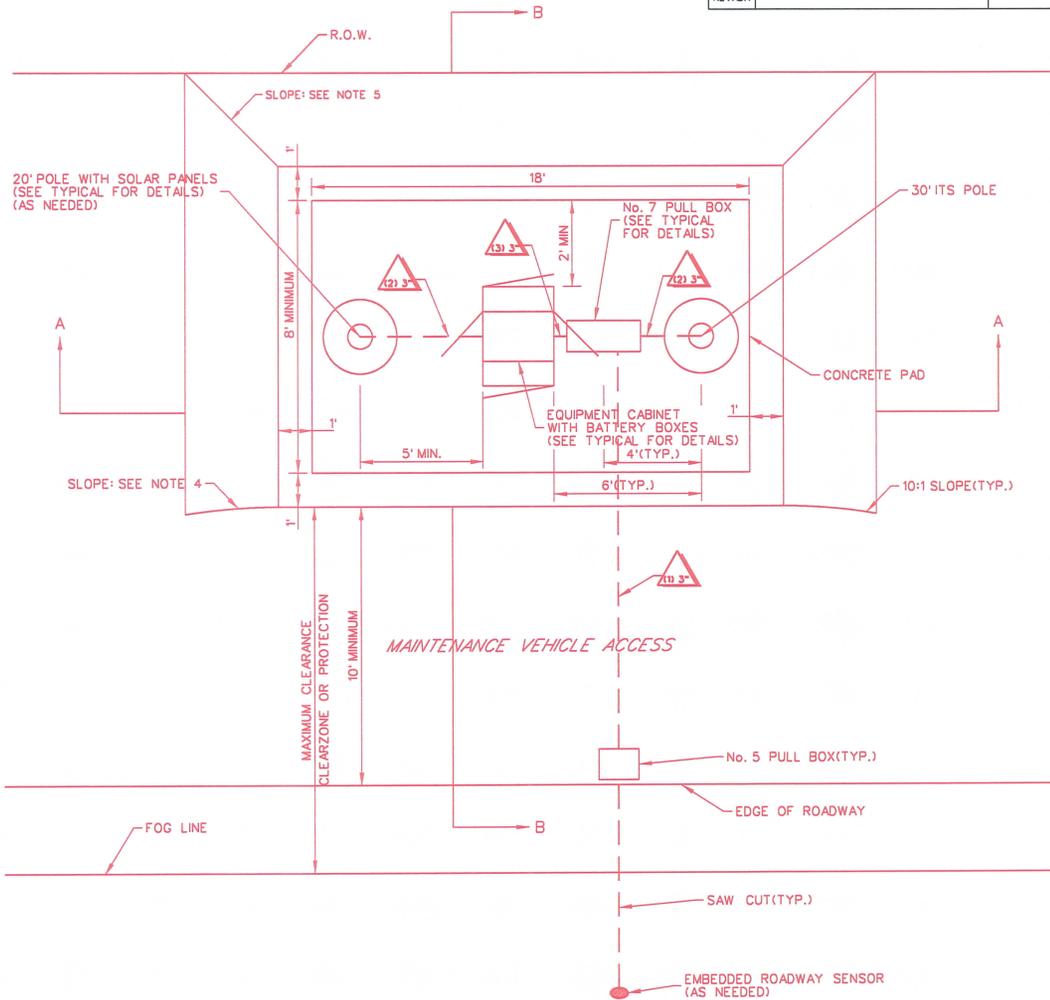
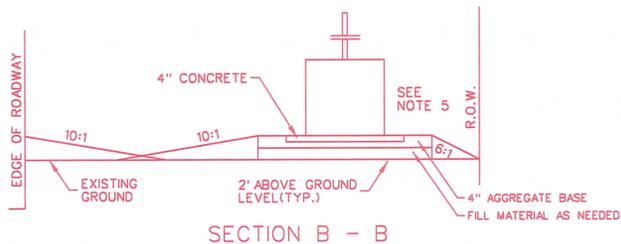
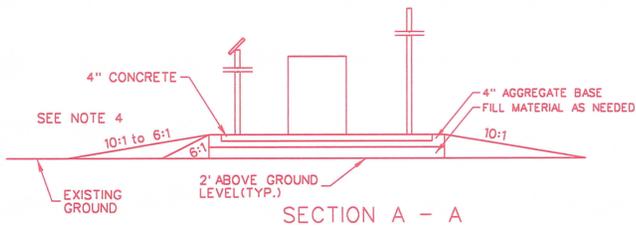
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

RWIS SITE
WITH AC POWER

STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			RWIS

NOTES:

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5. USE 2:1 MAX FOR NARROW RIGHT-OF-WAYS OR 6:1 PREFERRED FOR ALL OTHERS.
6. SITE PLACEMENT SHALL AVOID DRAINAGE FEATURES.
7. MAINTENANCE VEHICLE ACCESS COMPOSED OF 6" AGGREGATE BASE, GRINDING, OR EQUIVALENT



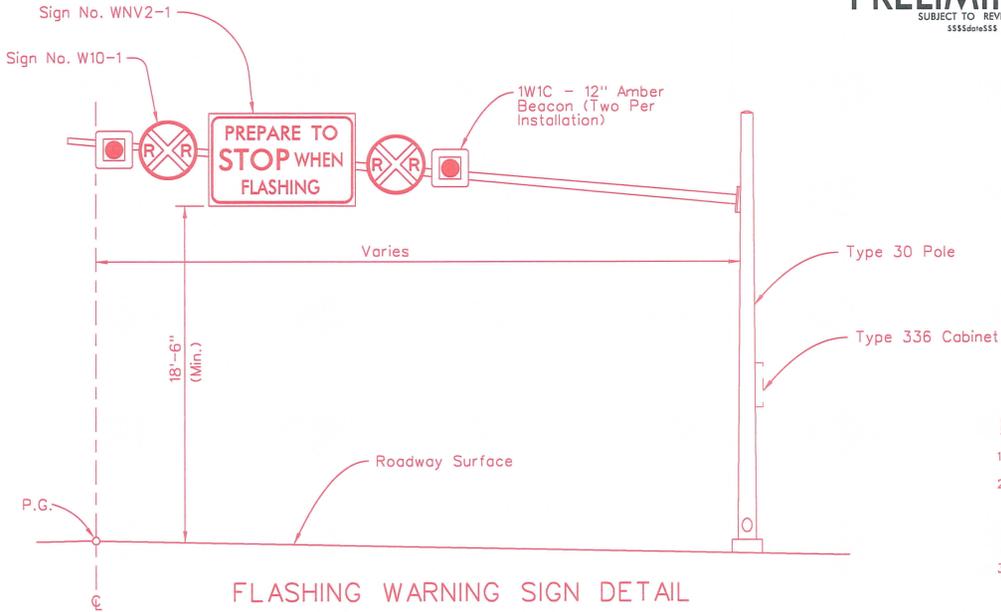
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

**RWIS SITE
WITH SOLAR POWER**

PRELIMINARY

SUBJECT TO REVISION
5555d0e555

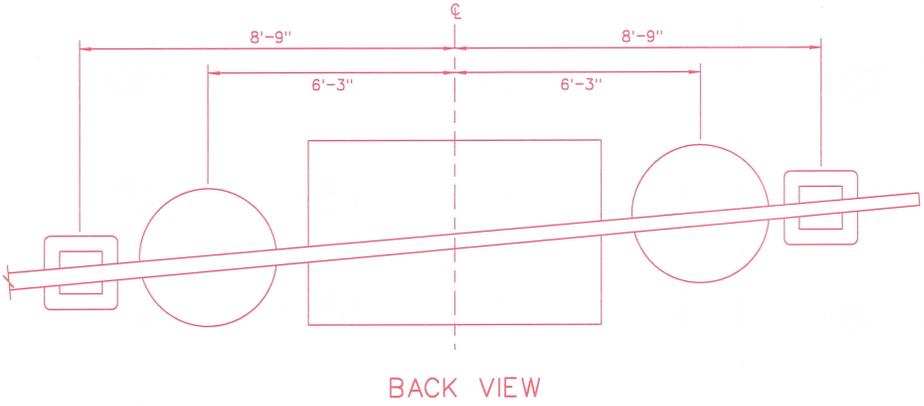
STATE	PROJECT NO.	COUNTY	SHEET NO.
NEVADA			



NOTES:

1. HIGH SPEED RURAL APPLICATIONS ONLY.
2. LOCATE WNV2-1 SIGN VERTICALLY ON MAST ARM NO LOWER THAN 18'-6" FROM THE ROADWAY SURFACE. DISTANCE IS MEASURED FROM THE BOTTOM EDGE OF THE SIGN TO THE ACTUAL TRAVEL LANE SURFACE. LOCATE THE SIGN HORIZONTALLY ON MAST ARM CENTERED OVER THE TRAVEL LANES.
3. SUBMIT SHOP DRAWINGS AND STRUCTURAL CALCULATIONS ON THE POLE, MAST ARM, SIGN LIGHTING FIXTURE MOUNT AND CONNECTIONS FOR APPROVAL.

FLASHING WARNING SIGN DETAIL



BACK VIEW

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

**ADVANCED ACTIVE
RAILROAD FLASHING
WARNING SIGN**



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: RRFB (AC POWER)
Note: A separate form is required for each standard detail.

Previously used: Contract Number: N/A Contract Sheet Numbers: _____
Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: THIS WILL SIGNIFICANTLY ASSIST TRAFFIC OPERATIONS MOVING FORWARD TO STANDARDIZE THE DEPARTMENTS RRFB (AC POWER) INSTALLATIONS.

Requestor Information: Name: [Signature] Phone: 7966

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

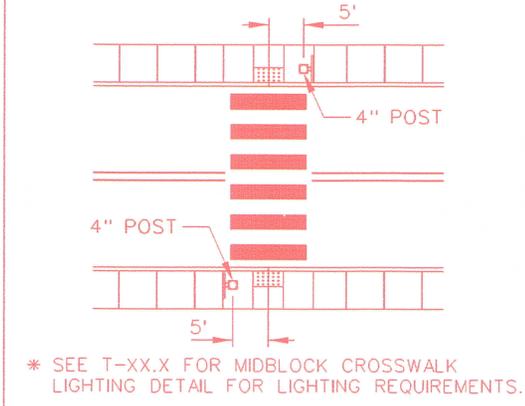
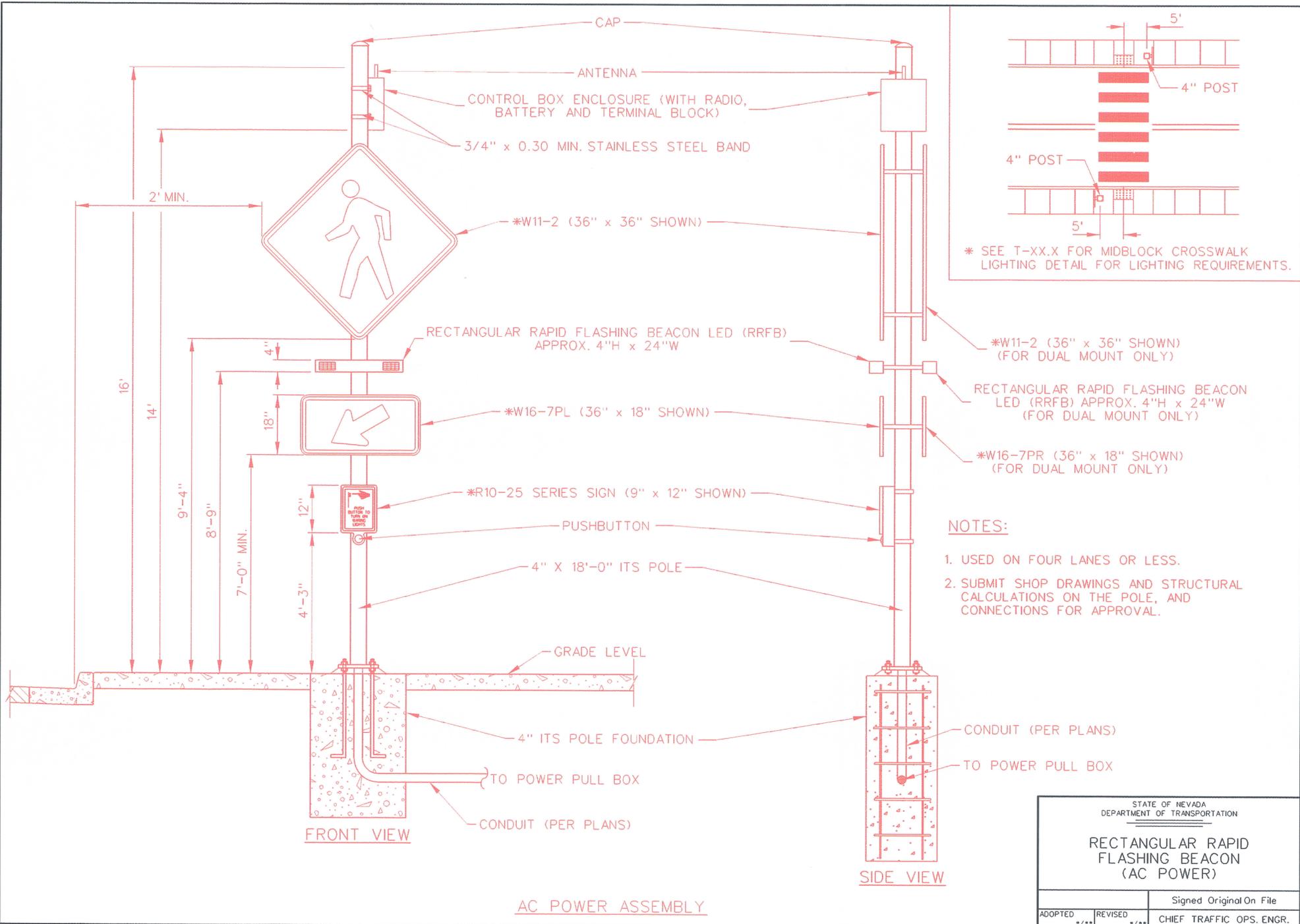
Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

Notes: _____

X-1



- NOTES:**
1. USED ON FOUR LANES OR LESS.
 2. SUBMIT SHOP DRAWINGS AND STRUCTURAL CALCULATIONS ON THE POLE, AND CONNECTIONS FOR APPROVAL.

STATE OF NEVADA DEPARTMENT OF TRANSPORTATION	
RECTANGULAR RAPID FLASHING BEACON (AC POWER)	
Signed Original On File	
ADOPTED -/-	REVISED -/-
CHIEF TRAFFIC OPS. ENGR.	

AC POWER ASSEMBLY



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: RRFB MAST ARM MOUNT (AC POWER)

Note: A separate form is required for each standard detail.

Previously used: Contract Number: N/A Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: THIS WILL SIGNIFICANTLY ASSIST TRAFFIC OPERATIONS MOVING FORWARD TO STANDARDIZE THE DEPARTMENTS RRFB MAST ARM MOUNT (AC POWER) INSTALLATIONS.

Requestor Information: Name: [Signature] Phone: 7566

For Standards/Manuals Personnel Only: Approved Denied

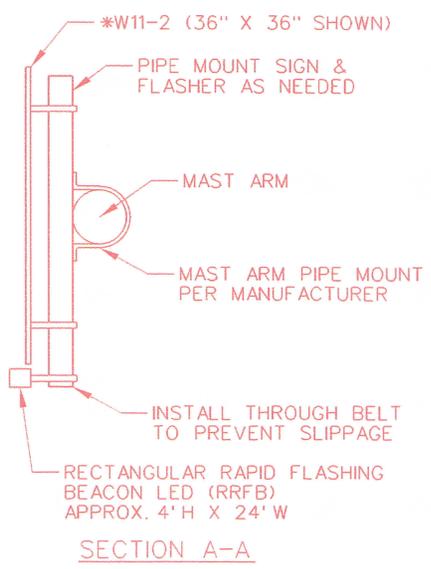
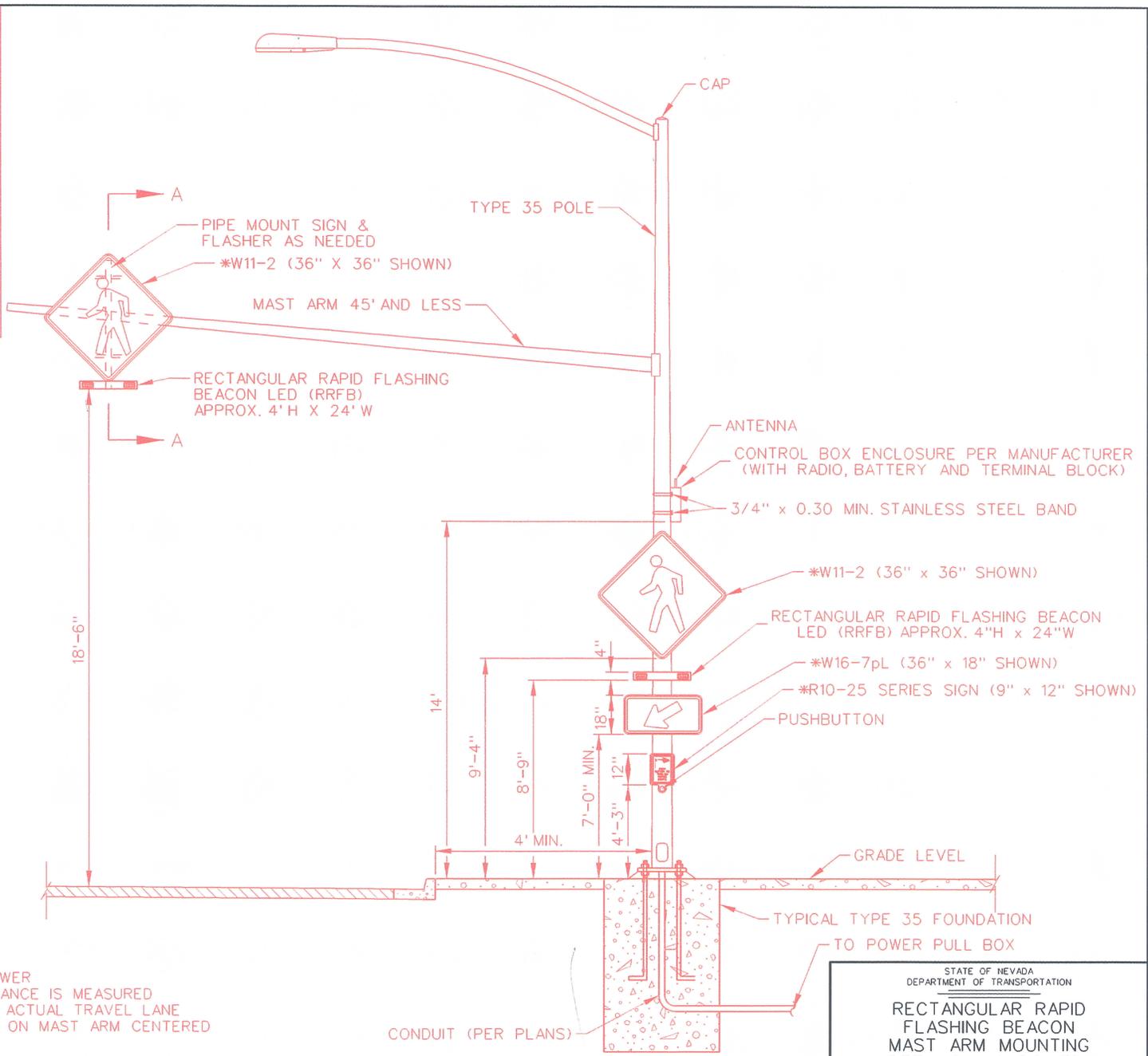
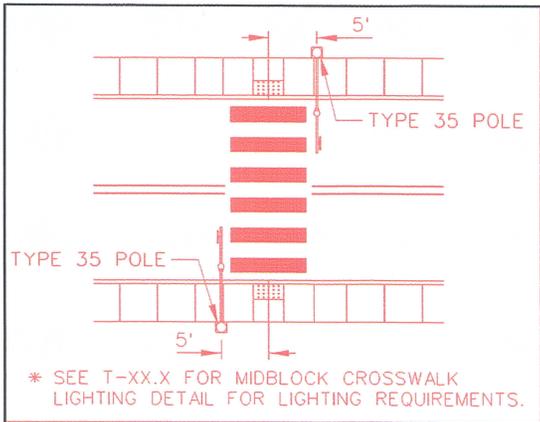
Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

Notes: _____



MAST ARM MOUNTING DETAILS (AC POWER)

NOTES:

1. USED ON FIVE LANES AND GREATER.
2. LOCATE RRFB VERTICALLY ON MAST ARM NO LOWER THAN 18'-6" FROM THE ROADWAY SURFACE. DISTANCE IS MEASURED FROM THE BOTTOM EDGE OF THE RRFB TO THE ACTUAL TRAVEL LANE SURFACE. LOCATE RRFB AND SIGN HORIZONTALLY ON MAST ARM CENTERED OVER THE TRAVEL LANES.
3. SUBMIT SHOP DRAWINGS AND STRUCTURAL CALCULATIONS ON THE POLE, MAST ARM, SIGN LIGHTING FIXTURE MOUNT AND CONNECTIONS FOR APPROVAL.

STATE OF NEVADA DEPARTMENT OF TRANSPORTATION		
RECTANGULAR RAPID FLASHING BEACON MAST ARM MOUNTING DETAILS (AC POWER)		
Signed Original On File		
ADOPTED -./..	REVISED -./..	CHEF TRAFFIC OPS. ENGR.

X-1



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: IRRFB (SOLAR POWER)

Note: A separate form is required for each standard detail.

Previously used: Contract Number: N/A Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: THIS WILL SIGNIFICANTLY ASSIST TRAFFIC OPERATIONS MOVING FORWARD TO STANDARDIZE THE DEPARTMENT'S IRRFB (SOLAR POWER) INSTALLATIONS.

Requestor Information: Name: Thomas J. [Signature] Phone: 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

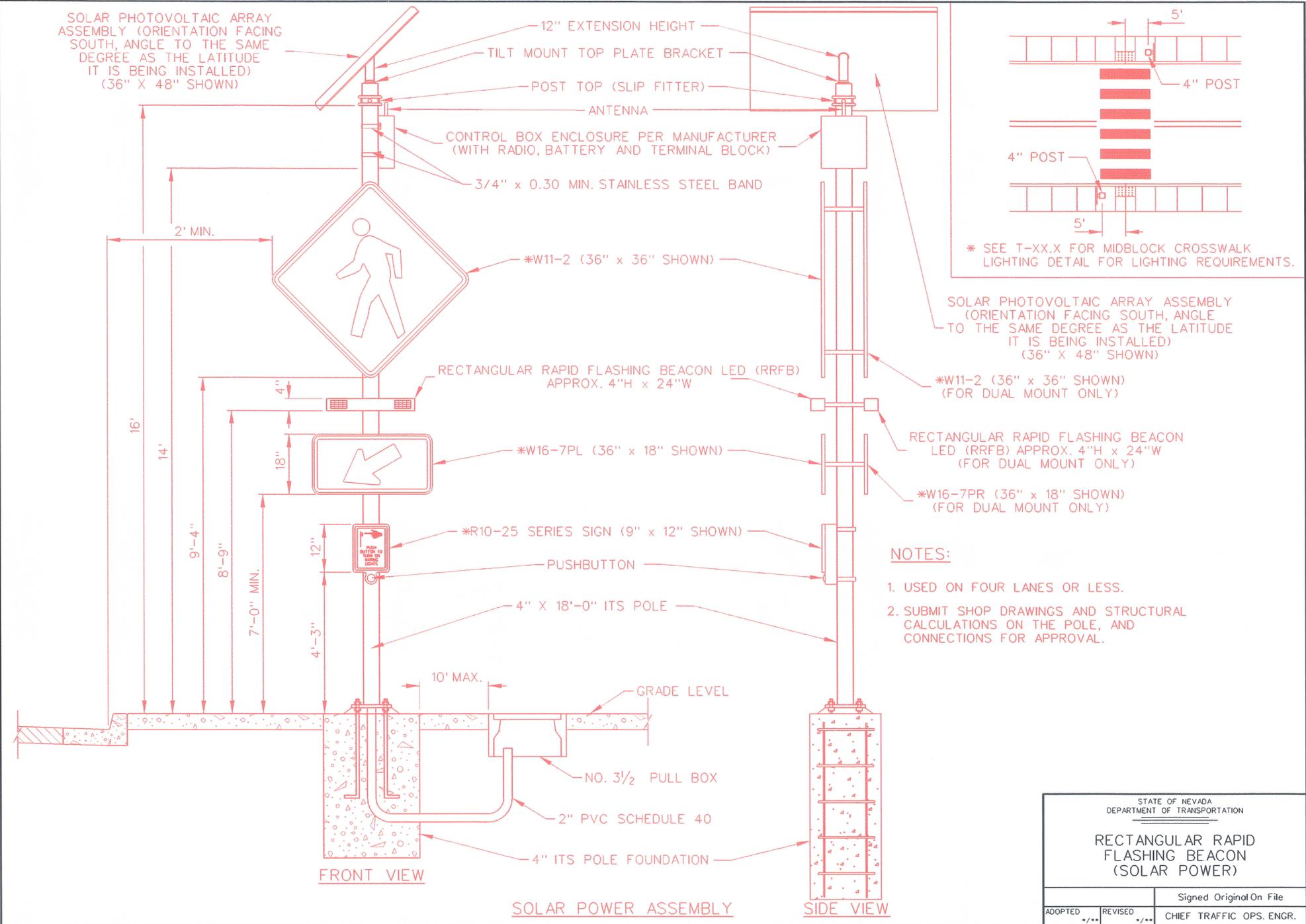
Created by: Signature: _____ Date: _____

Policy Review:

CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

Notes: _____



STATE OF NEVADA DEPARTMENT OF TRANSPORTATION	
RECTANGULAR RAPID FLASHING BEACON (SOLAR POWER)	
Signed Original On File	
ADOPTED	REVISED
CHIEF TRAFFIC OPS. ENGR.	



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: RECTANGULAR RAPID FLASHING BEACON MAST ARM MOUNT (SOLAR)
Note: A separate form is required for each standard detail. (RIRFB)

Previously used: Contract Number: N/A Contract Sheet Numbers: _____
Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: THIS WILL SIGNIFICANTLY ASSIST TRAFFIC OPERATIONS MOVING FORWARD TO STANDARDIZE THE DEPARTMENT'S RIRFB MAST ARM MOUNT (SOLAR POWER) INSTALLATIONS.

Requestor Information: Name: [Signature] Phone: 7566

For Standards/Manuals Personnel Only: Approved Denied

Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

Notes: _____



Standard Plans New Request

Requests for additions to the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Design Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Detail Name: STANDARD MIDBLOCK CROSSWALK LIGHTING

Note: A separate form is required for each standard detail.

Previously used: Contract Number: N/A Contract Sheet Numbers: _____

Note: If not previously used by NDOT you must provide drawings and other supporting documentation.

Comments: THIS WILL SIGNIFICANTLY ASSIST TRAFFIC OPERATIONS MOVING FORWARD TO STANDARDIZE THE DEPARTMENTS STANDARD MIDBLOCK CROSSWALK LIGHTING INSTALLATIONS.

Requestor Information: Name: *Shane Hume* Phone: 7566

For Standards/Manuals Personnel Only: Approved Denied

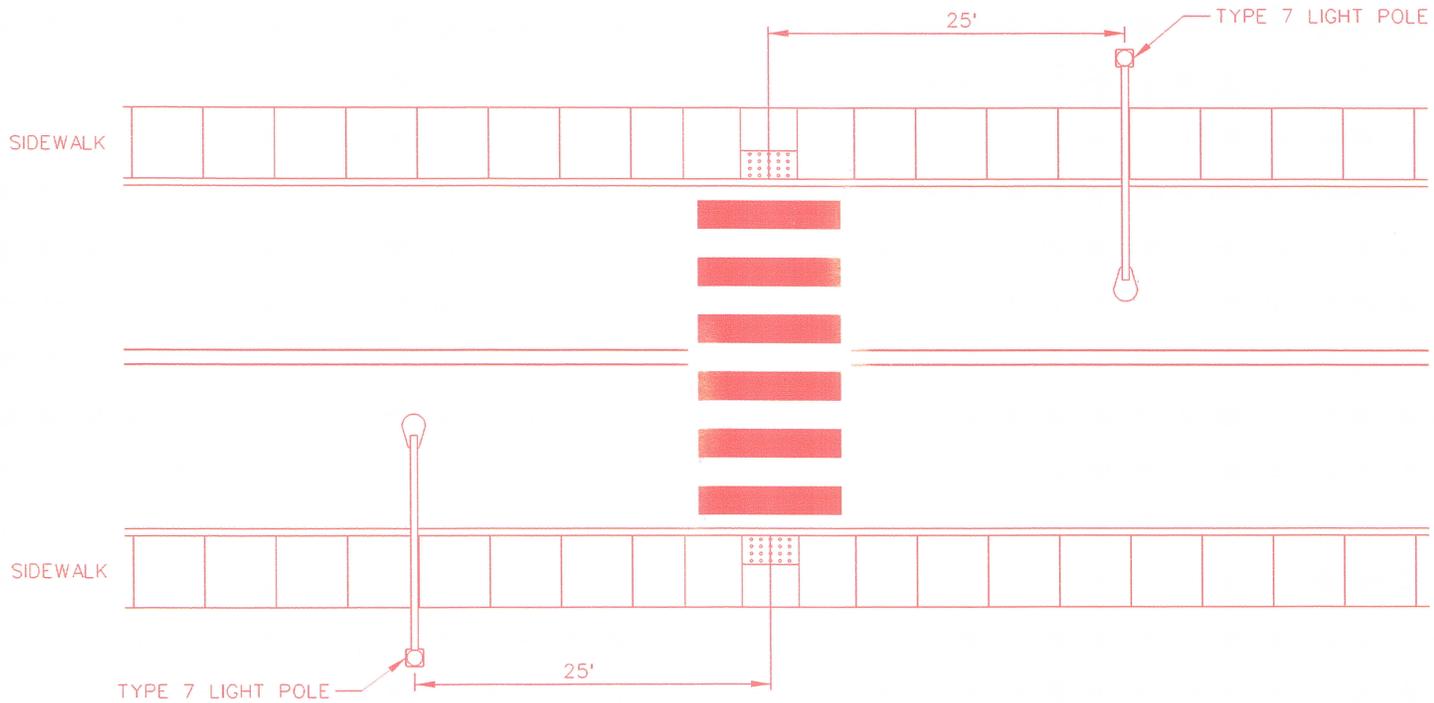
Sheet Number: _____ Sheet Title: _____

Created by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

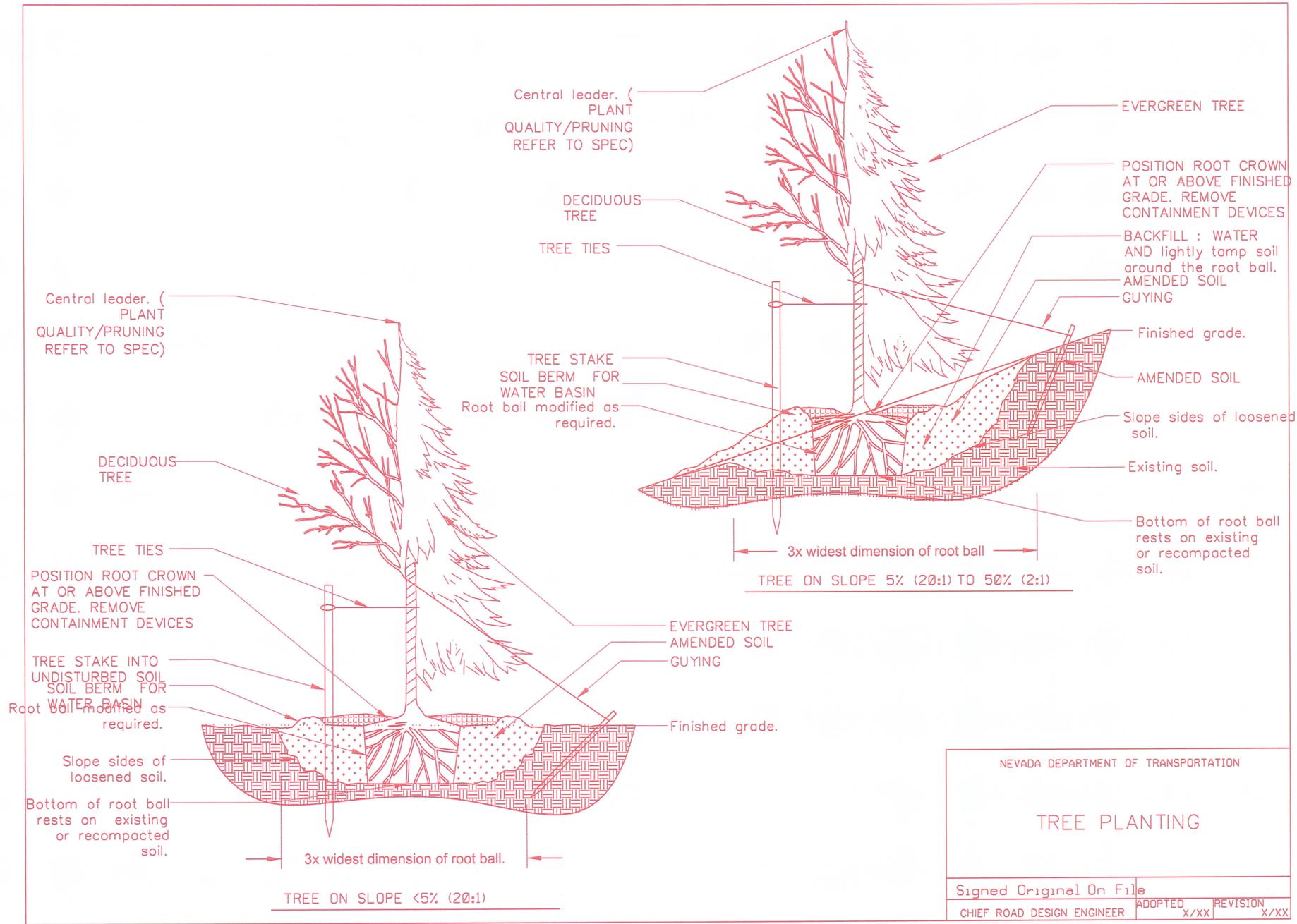
Notes: _____



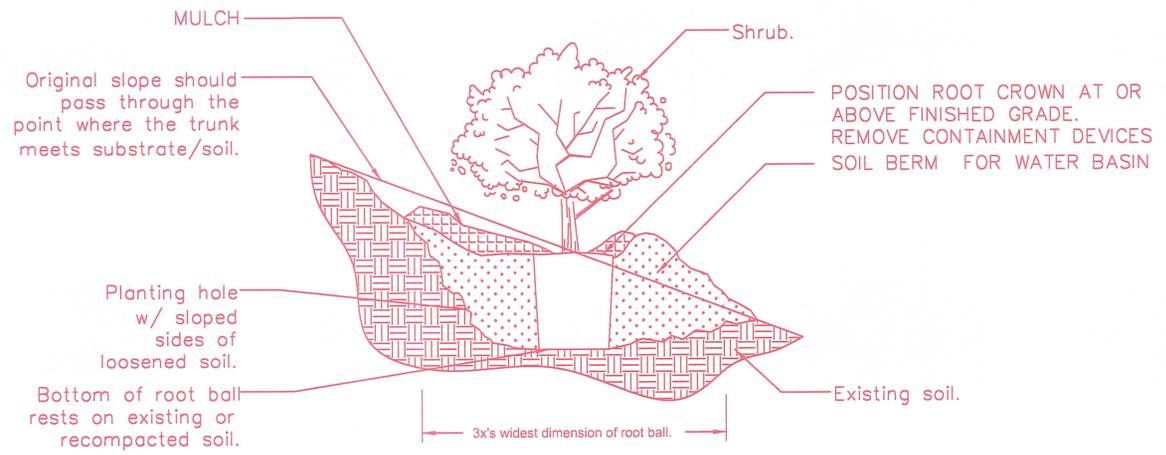
NOTES:

- 1. REFER TO DETAIL TXX.XX.XX FOR STANDARD TYPE 7 POLE FOUNDATION DETAILS.
- 2. REFER TO DETAIL TXX.XX.XX FOR STANDARD CROSSWALK PAVEMENT MARKINGS FOR STOP AND YIELD BARS.

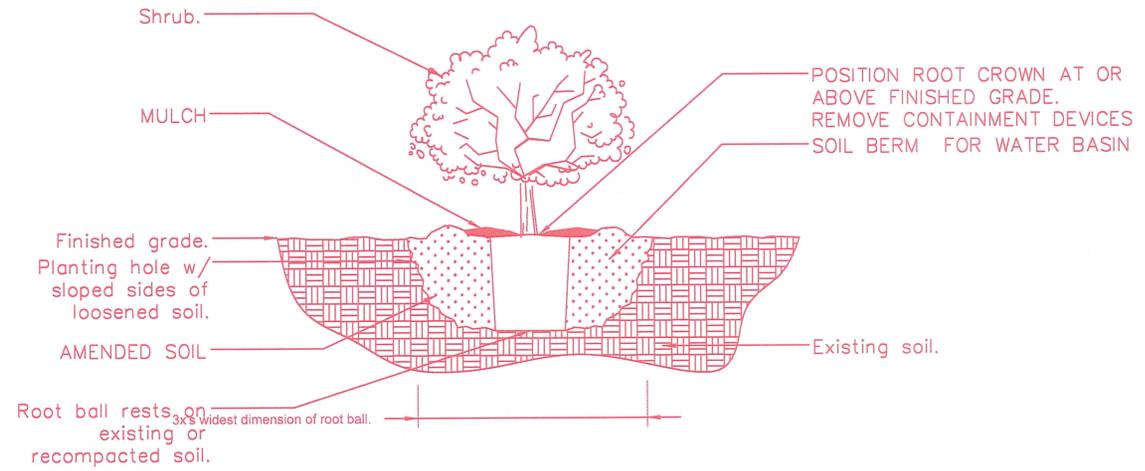
STATE OF NEVADA DEPARTMENT OF TRANSPORTATION		
STANDARD MIDBLOCK CROSSWALK LIGHTING		
		Signed Original On File
ADOPTED	REVISED	CHIEF TRAFFIC OPS. ENGR.
//..	_/_/..	



NEVADA DEPARTMENT OF TRANSPORTATION		
TREE PLANTING		
Signed Original On File		
CHIEF ROAD DESIGN ENGINEER	ADOPTED X/XX	REVISION X/XX

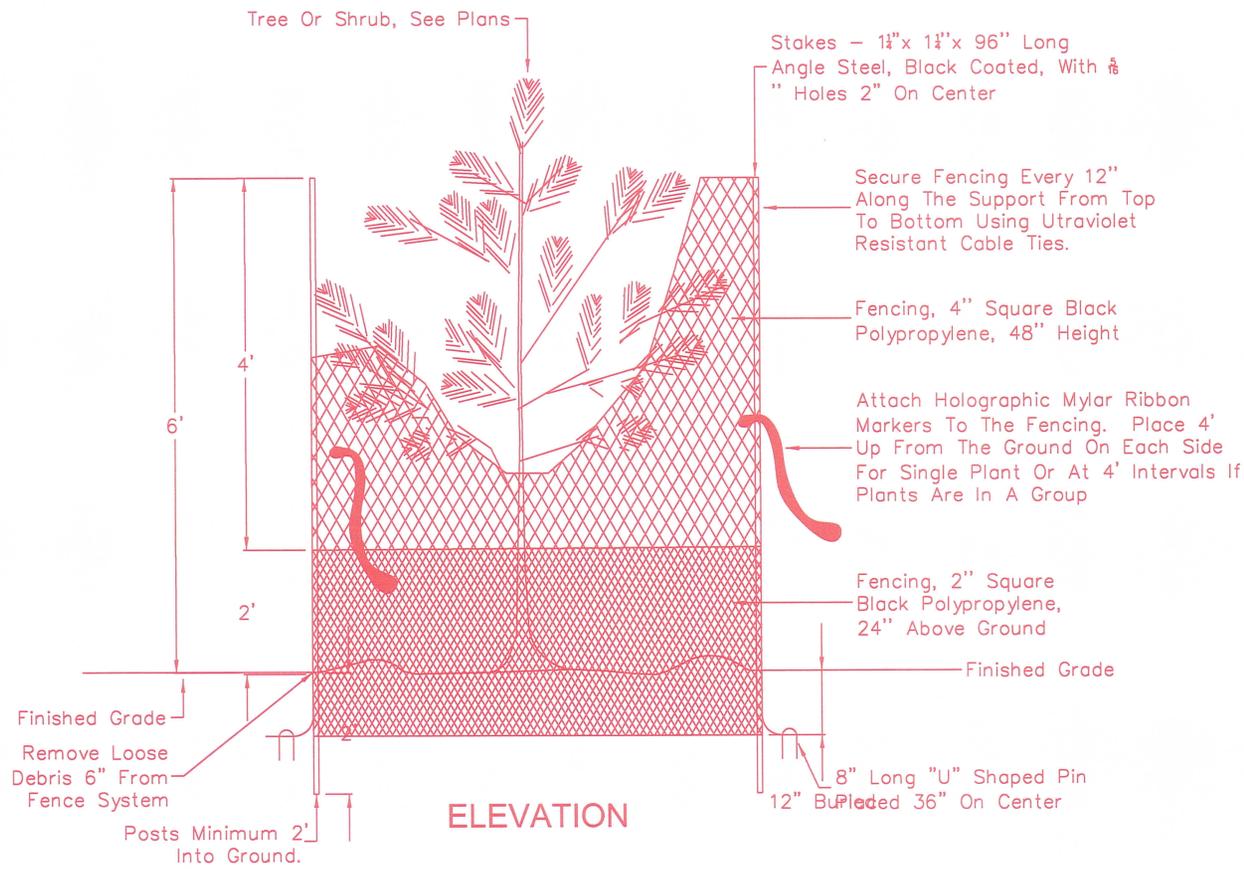


SHRUB ON SLOPE 5% (20:1) TO 50% (2:1)

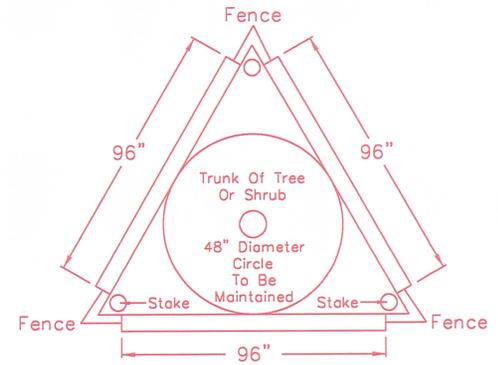


SHRUB ON SLOPE <5% (20:1)

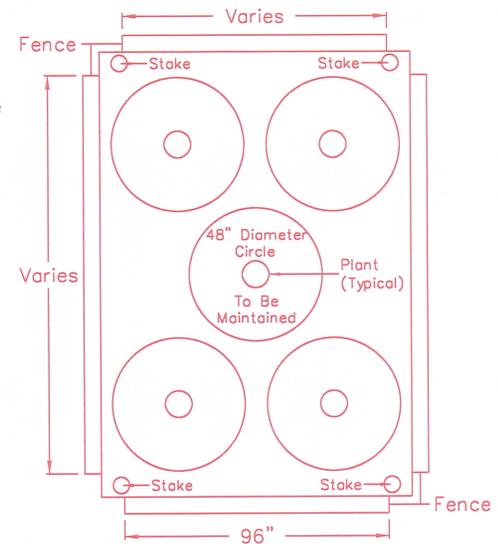
NEVADA DEPARTMENT OF TRANSPORTATION		
SHRUB PLANTING		
Signed Original On File	ADOPTED	REVISION
CHIEF ROAD DESIGN ENGINEER	X/XX	X/XX



ELEVATION

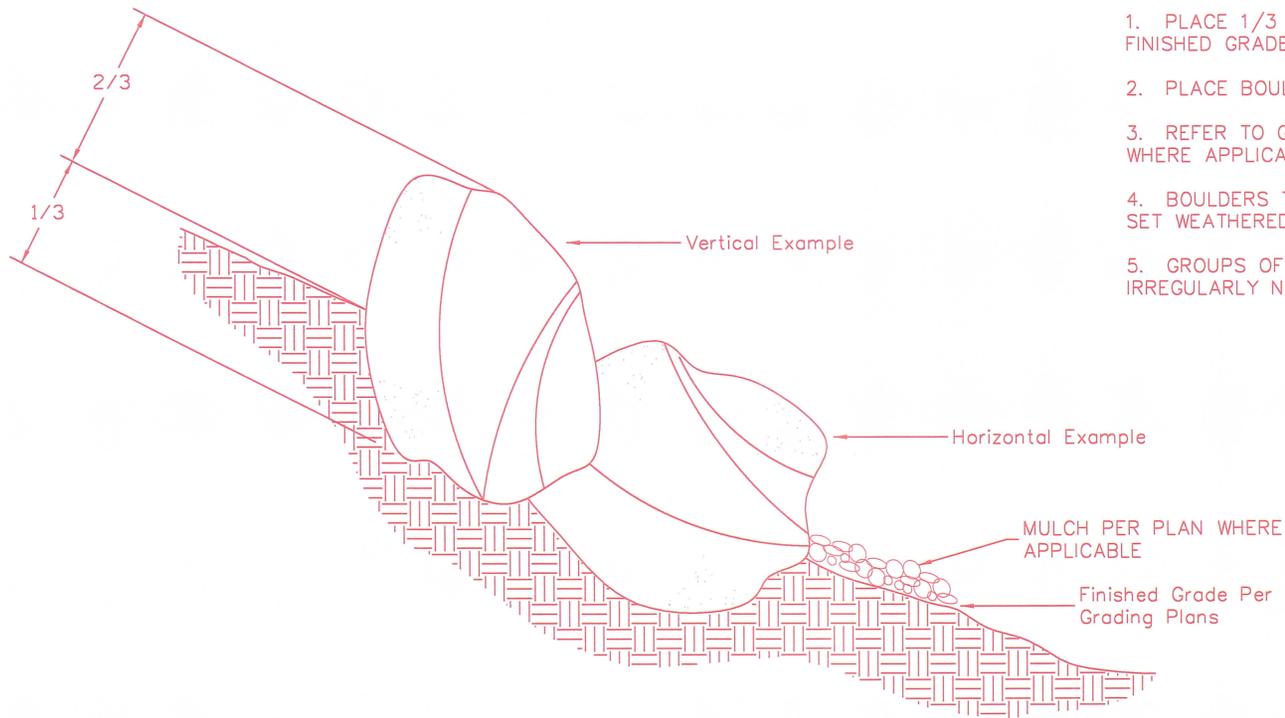


SINGLE PLANT PLAN



MULTIPLE PLANT PLAN

NEVADA DEPARTMENT OF TRANSPORTATION		
WILDLIFE BARRIER FENCING		
Signed Original On File		
CHIEF ROAD DESIGN ENGINEER	ADOPTED X/XX	REVISION X/XX



ELEVATION

GENERAL NOTES:

1. PLACE 1/3 OF THE TOTAL DIAMETER BELOW FINISHED GRADE.
2. PLACE BOULDERS AS SHOWN ON PLAN.
3. REFER TO GEOTECHNICAL RECOMMENDATIONS WHERE APPLICABLE.
4. BOULDERS TO BE CLEAN AND UNMARKED, SET WEATHERED SIDE UP
5. GROUPS OF BOULDERS TO BE PLACED IRREGULARLY NOT IN A STRAIGHT LINE.

NEVADA DEPARTMENT OF TRANSPORTATION

BOULDER PLACEMENT

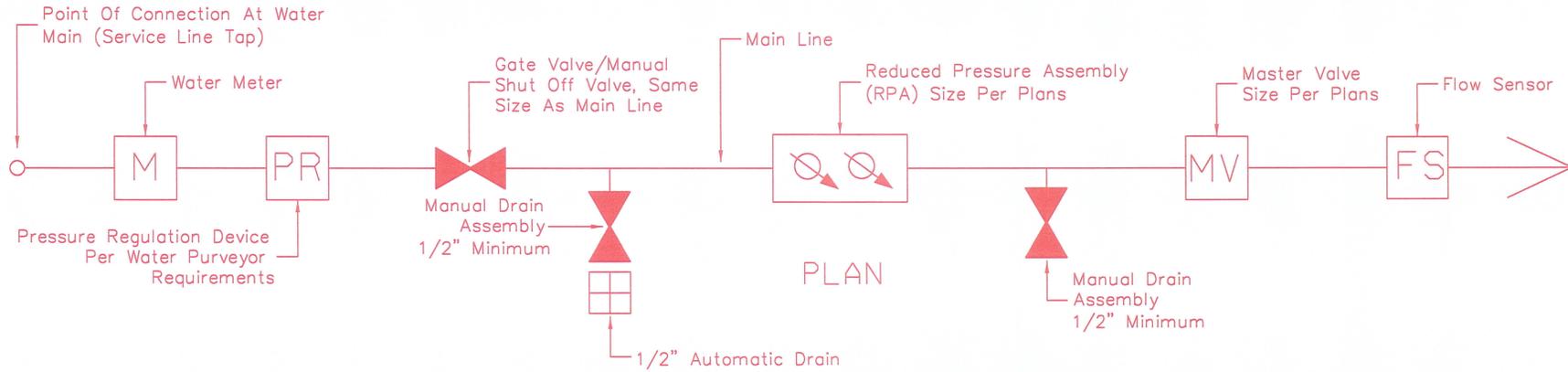
Signed Original On File

CHIEF ROAD DESIGN ENGINEER

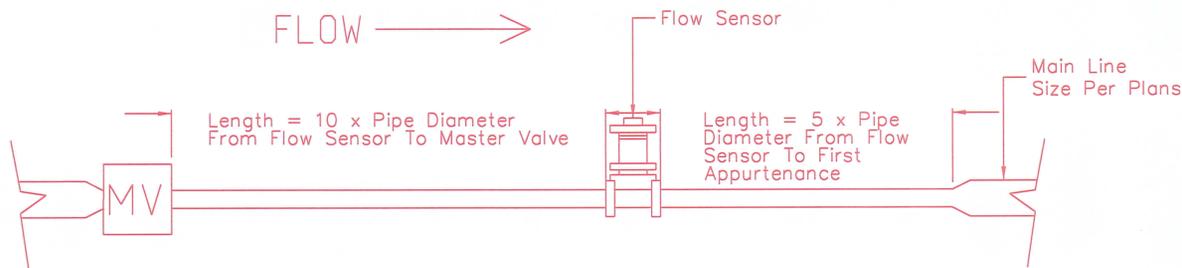
ADOPTED
X/XX

REVISION
X/XX

FLOW →



FLOW →



NEVADA DEPARTMENT OF TRANSPORTATION

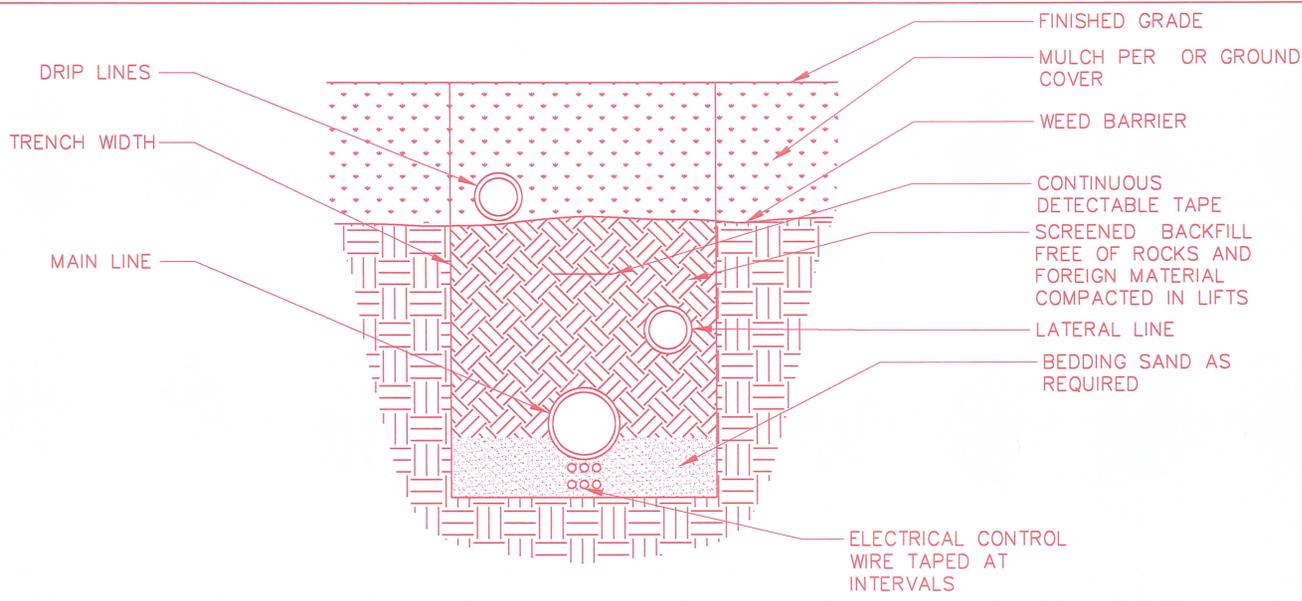
POINT OF CONNECTION

Signed Original On File

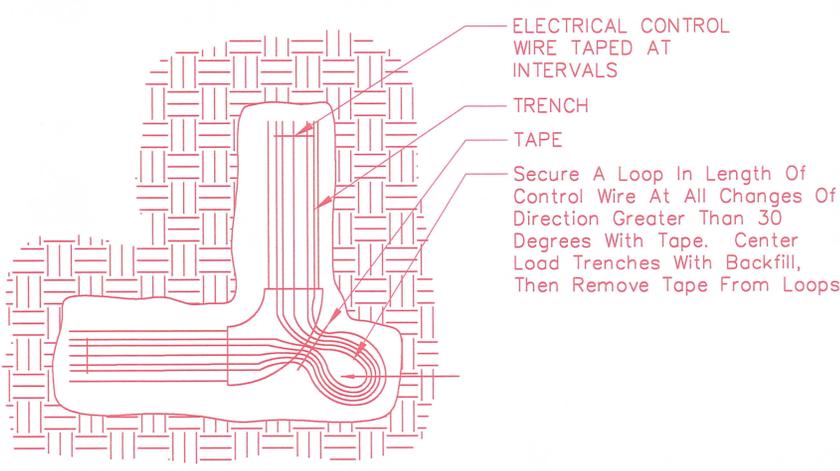
CHIEF ROAD DESIGN ENGINEER

ADOPTED
X/XX

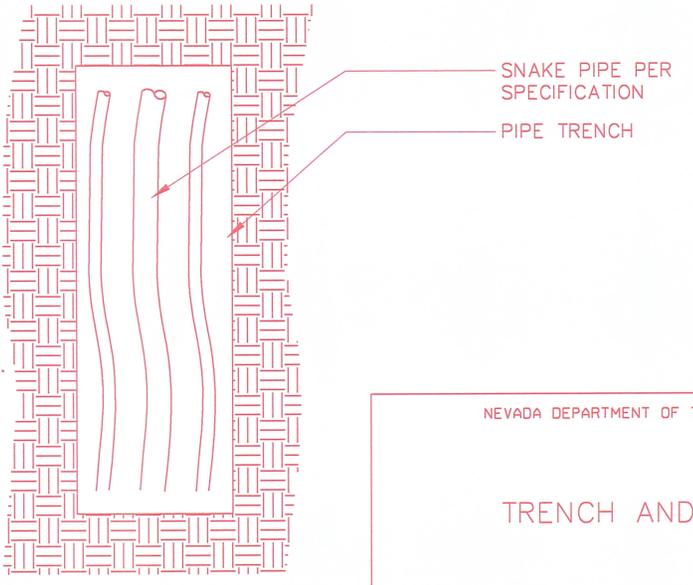
REVISION
X/XX



ELEVATION



PLAN

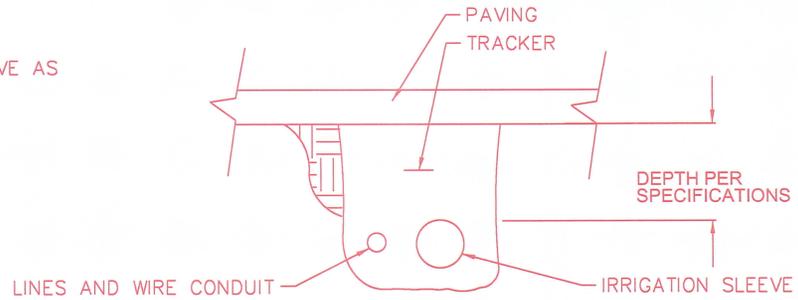


PLAN

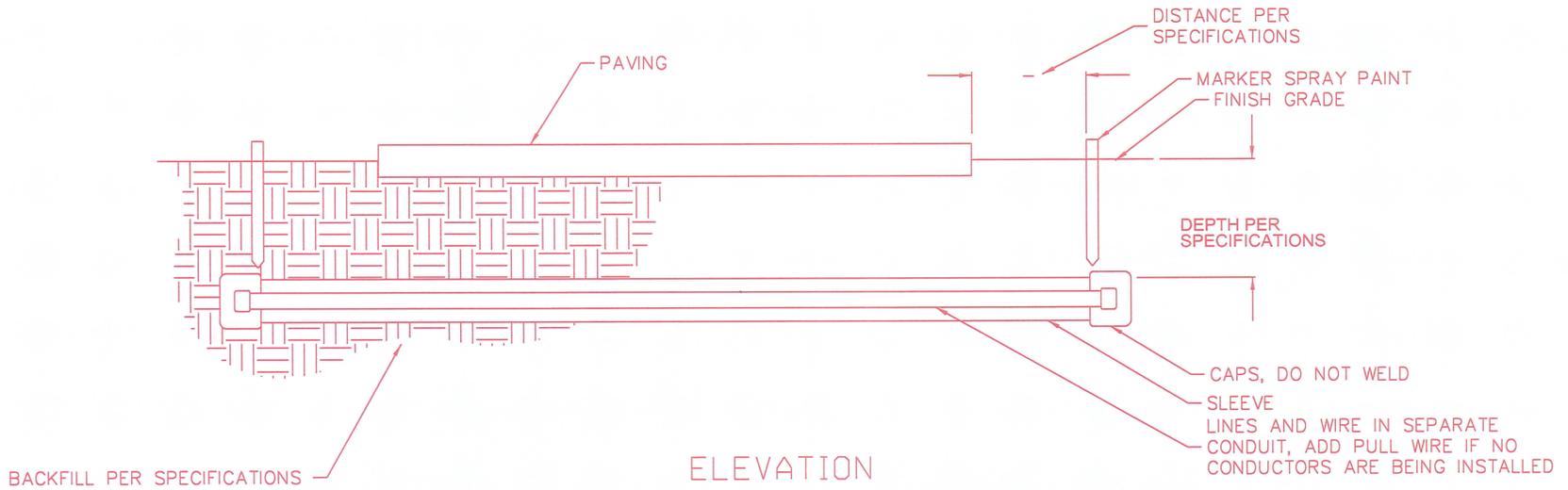
NEVADA DEPARTMENT OF TRANSPORTATION		
TRENCH AND WIRE		
Signed Original On File		
CHIEF ROAD DESIGN ENGINEER	ADOPTED X/XX	REVISION X/XX

Notes:

- 1. SEE SPECIFICATIONS FOR SLEEVE MATERIAL
- 2. CAP AND MARK THE LOCATIONS FO ALL SLEEVE AS INDICATED
- 3. BACKFILL IN ACCORDANCE TO SPECIFICATIONS



SECTION

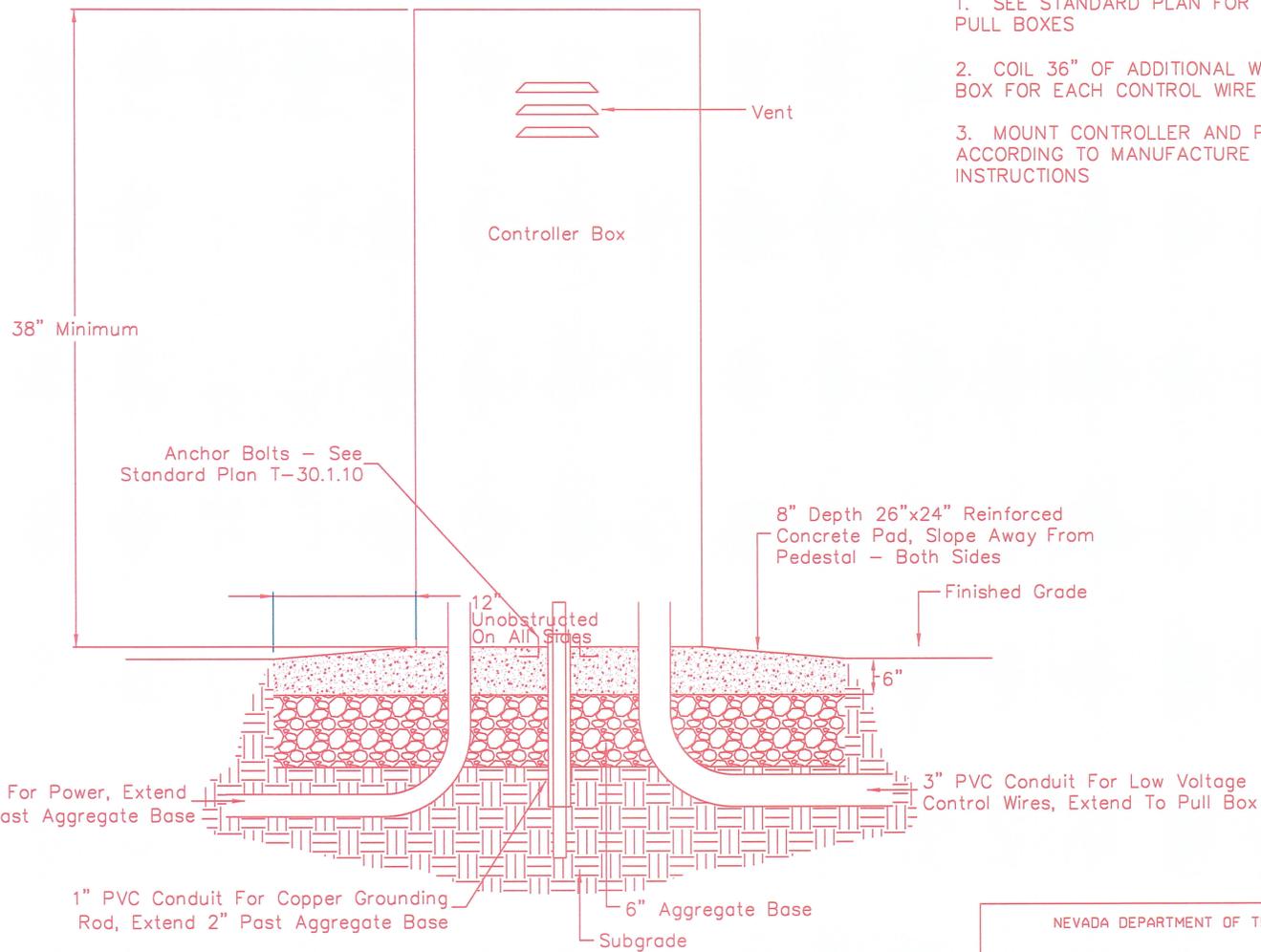


ELEVATION

NEVADA DEPARTMENT OF TRANSPORTATION

SLEEVE INSTALLATION

Signed Original On File		
CHIEF ROAD DESIGN ENGINEER	ADOPTED X/XX	REVISION X/XX



GENERAL NOTES:

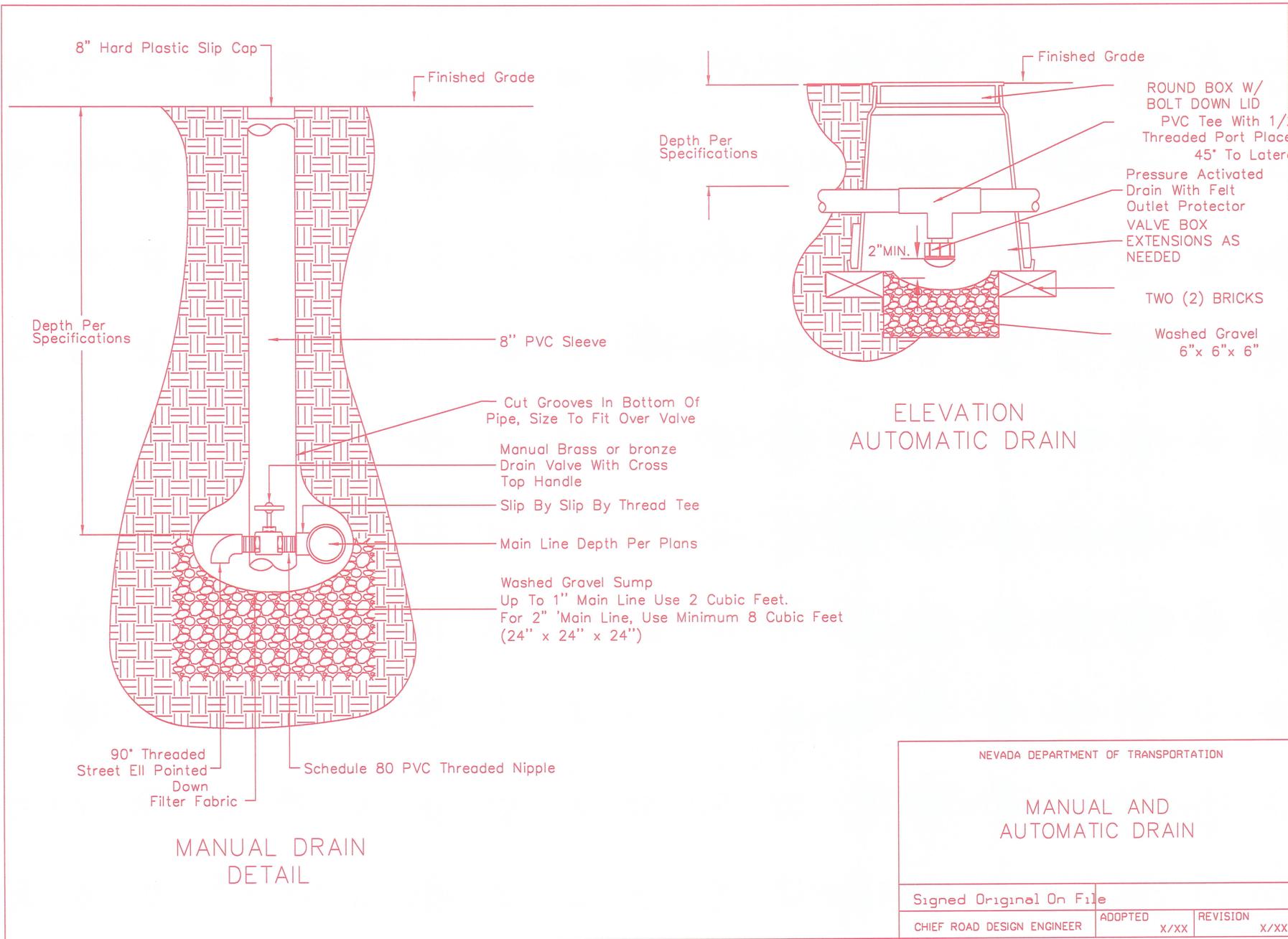
1. SEE STANDARD PLAN FOR TRAFFIC RATED PULL BOXES
2. COIL 36" OF ADDITIONAL WIRE IN PULL BOX FOR EACH CONTROL WIRE
3. MOUNT CONTROLLER AND PEDESTAL ACCORDING TO MANUFACTURE INSTALLATION INSTRUCTIONS

NEVADA DEPARTMENT OF TRANSPORTATION

IRRIGATION
CONTROLLER

Signed Original On File

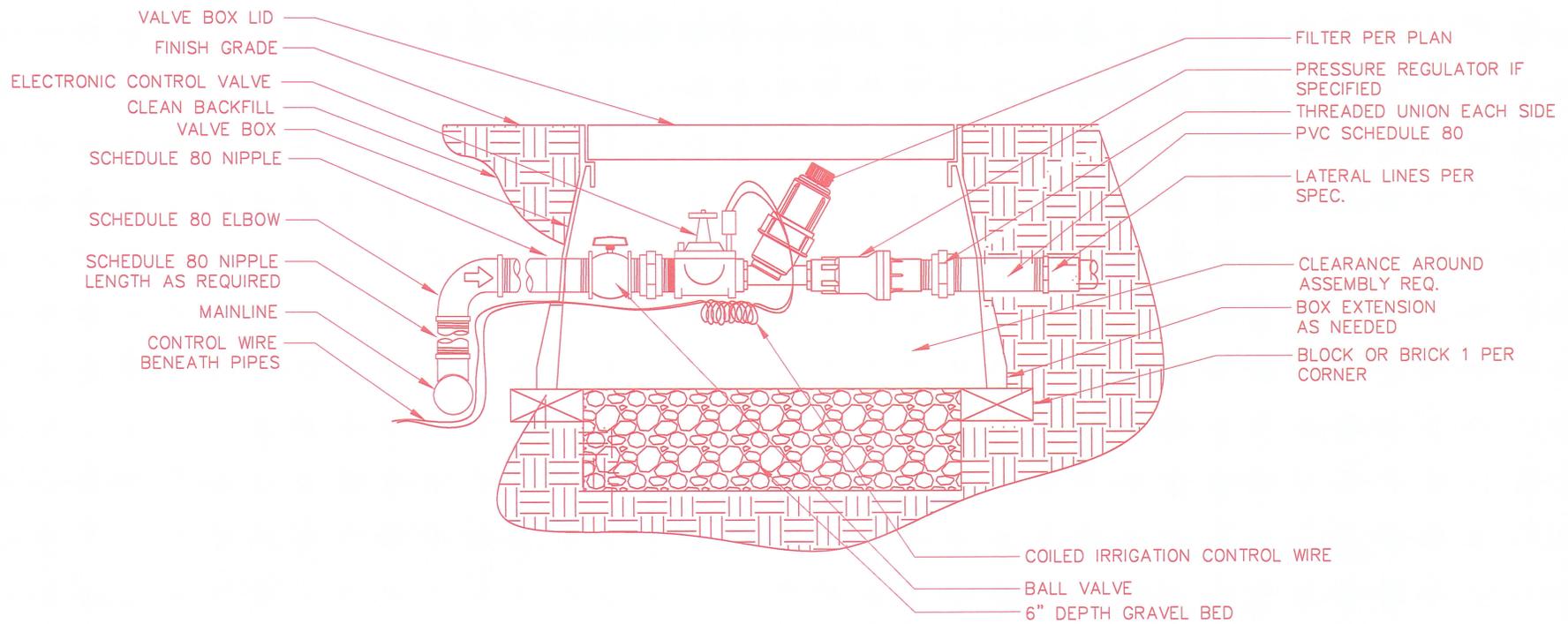
CHIEF ROAD DESIGN ENGINEER	ADOPTED X/XX	REVISION X/XX
----------------------------	-----------------	------------------



NEVADA DEPARTMENT OF TRANSPORTATION

MANUAL AND AUTOMATIC DRAIN

Signed Original On File		
CHIEF ROAD DESIGN ENGINEER	ADOPTED X/XX	REVISION X/XX



NEVADA DEPARTMENT OF TRANSPORTATION

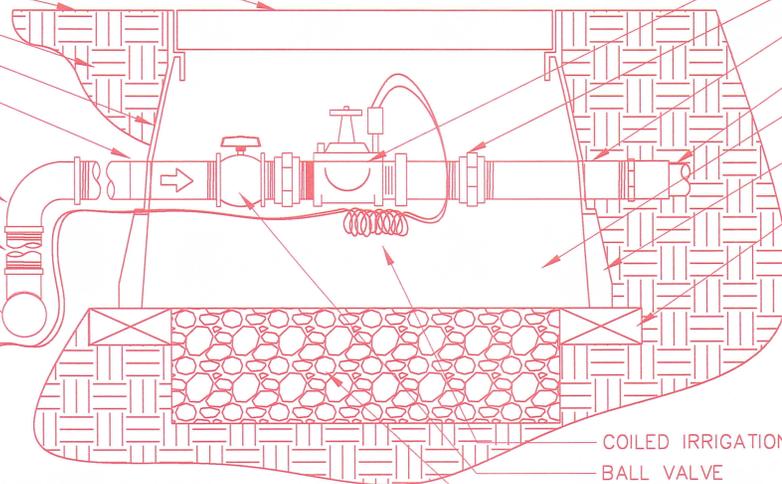
DRIP VALVE ASSEMBLY

Signed Original On File		
CHIEF ROAD DESIGN ENGINEER	ADOPTED X/XX	REVISION X/XX

VALVE BOX LID
 FINISH GRADE
 CLEAN BACKFILL
 VALVE BOX
 SCHEDULE 80 NIPPLE
 SCHEDULE 80 ELBOW
 SCHEDULE 80 NIPPLE
 LENGTH AS REQUIRED
 MAINLINE
 CONTROL WIRE
 BENEATH PIPES

ELECTRONIC CONTROL VALVE
 THREADED UNION EACH SIDE
 PVC SCHEDULE 80
 LATERAL SCHEDULE 40
 CLEARANCE AROUND
 ASSEMBLY
 BOX EXTENSION
 AS NEEDED
 BLOCK OR BRICK 1 PER
 CORNER

COILED IRRIGATION CONTROL WIRE
 BALL VALVE
 6" DEPTH GRAVEL BED



NEVADA DEPARTMENT OF TRANSPORTATION

SPRAY VALVE ASSEMBLY

Signed Original On File		
CHIEF ROAD DESIGN ENGINEER	ADOPTED X/XX	REVISION X/XX

ROUND VALVE BOX WITH
LOCKING LID.

Finished Grade

Hose Swivel

2" Minimum
Valve Key

6" Minimum
Washed Gravel

Main Line

STAINLESS STEEL
SCREW CLAMP.

#4 X 48" REBAR.

QUICK COUPLER VALVE BRASS OR BRONZE
2 PEICE CONSTRUCTION . (SEE IRRIGATION
LEGEND FOR MAKE AND MODEL NUMBER).

SCH. 80 PVC NIPPLE.

TWO (2) BRICKS TO SUPPORT BOX .

SCH. 80 PVC SWING JOINT.

SCH. 80 PVC TEE OR ELBOW.

NOTES:

1- ALL THREADED CONNECTIONS SHALL BE INSTALLED
USING TEFLON TAPE.

3- ALL QUICK COUPLERS SHALL BE INSTALLED A
MINIMUM OF 18" OFF OF THE MAINLINE.

4- VALVE BOXES SHALL BE LOCATED IN PLANTING
AREAS.

NEVADA DEPARTMENT OF TRANSPORTATION

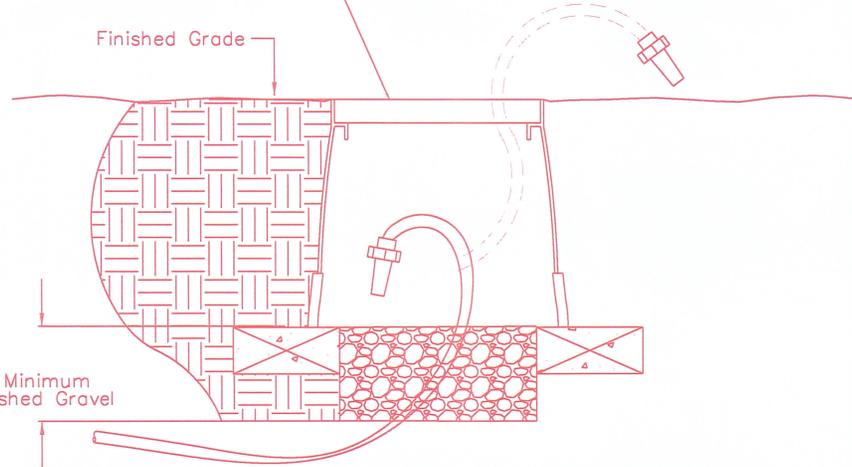
QUICK COUPLER

Signed Original On File	ADOPTED	REVISION
CHIEF ROAD DESIGN ENGINEER	X/XX	X/XX

ROUND VALVE BOX WITH
LOCKING LID.

Finished Grade

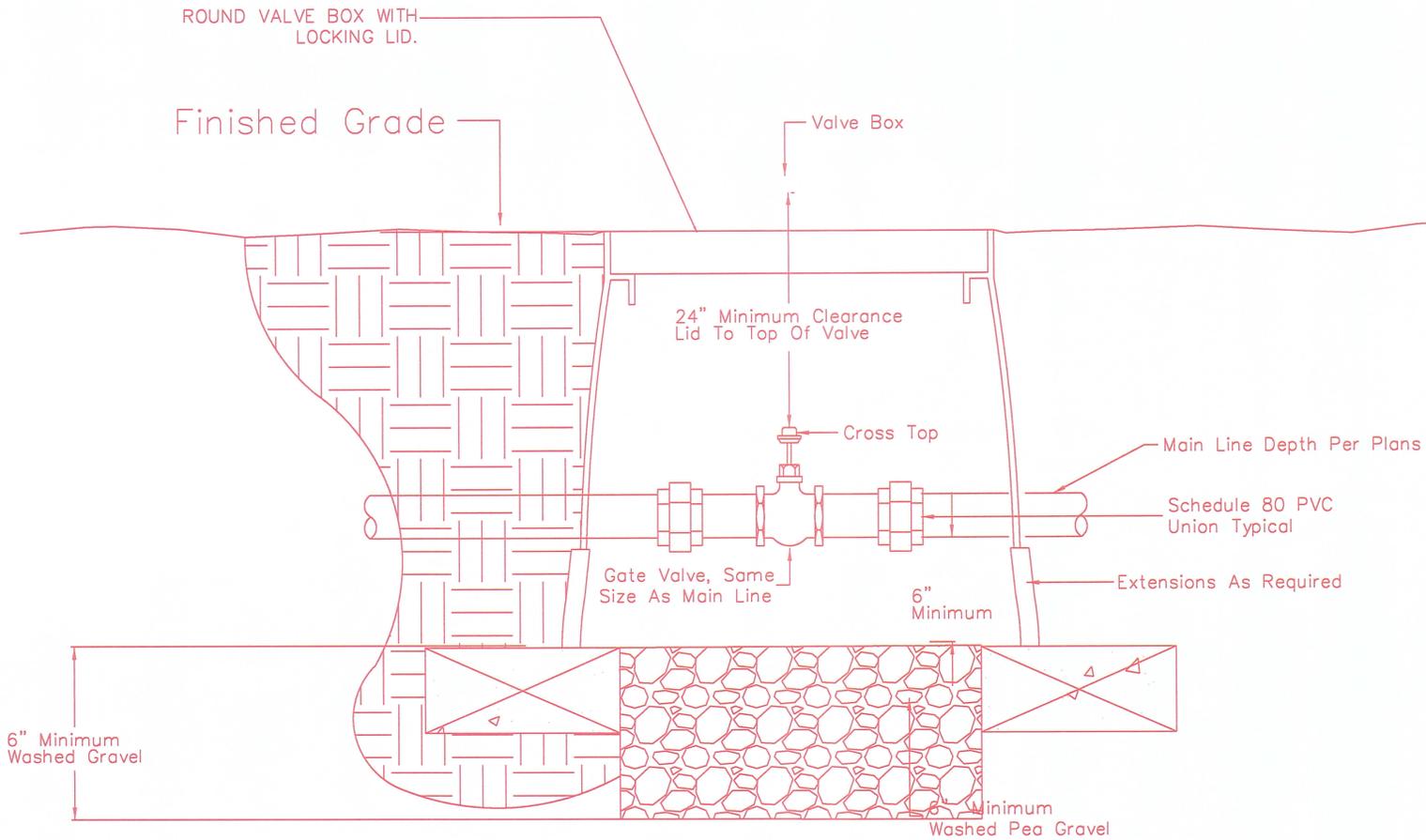
6" Minimum
Washed Gravel



NEVADA DEPARTMENT OF TRANSPORTATION

DRIP LINE FLUSH PLUG

Signed Original On File		
CHIEF ROAD DESIGN ENGINEER	ADOPTED X/XX	REVISION X/XX



ELEVATION

NEVADA DEPARTMENT OF TRANSPORTATION

GATE VALVE

Signed Original On File		
CHIEF ROAD DESIGN ENGINEER	ADOPTED X/XX	REVISION X/XX



Standard Plans Change Request

Requests for modifying the Standard Plans for Road and Bridge Construction must be submitted to:

NDOT Specifications Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712

Standard Sheet No.: T-30.1.12 Page No.: T-22 Note: A separate form is required for each change.

Description of requested modification or correction: ADD DETAIL FOR
TERMINAL BLOCK HAND HOLE AND NOTES TO
UPDATE

(Please attach supporting information).

Reason for request: STANDARD PRACTICE

Requestor Information: Name: [Signature] Phone: 7566

For Standards/Manuals Personnel Only: Approved Denied

Revised by: Signature: _____ Date: _____

Policy Review:
 CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

Notes: _____



Standard Plans Change Request

Requests for modifying the Standard Plans for Road and Bridge Construction must be submitted to:

**NDOT Specifications Division
Attn: Standards and Manuals Supervisor
1263 South Stewart Street
Carson City, Nevada 89712**

Standard Sheet No.: T-38.1.6 Page No.: T-96 Note: A separate form is required for each change.

Description of requested modification or correction:

1. The wing width dimension on the MARKING & PLACEMENT DETAIL shows (2) distances of 1'-4'.
2. In the MARKING & PLACEMENT DETAIL Change the airplane Sq. Ft. from 11.5 ft. ² to 6ft ²
3. Note 1: Delete the last line "Chief Pilot – (775) 721-9044)

(Please attach supporting information).

Reason for request:

1. The wing width dimension on the MARKING & PLACEMENT DETAIL should read (2) distances of 1'4".
2. In the MARKING & PLACEMENT DETAIL the airplane Sq. Ft. should read 6ft ²
3. Note 1: N.H.P. is currently not air patrolling road way.

Requestor Information: Name: Jeannie Drown Phone: 888-7678

For Standards/Manuals Personnel Only: Approved Denied

Revised by: Signature: _____ Date: _____

Policy Review:

CADD Standards ASTM AASHTO Design Manual Specifications

Reviewed by: Signature: _____ Date: _____

Notes:

Dimit, Eric S

From: Eiche, John R
Sent: Tuesday, October 07, 2014 11:08 AM
To: Dimit, Eric S
Subject: FW: Contract 3524 Airplane Markings

From: Ezell, Billy D
Sent: Monday, August 04, 2014 5:20 AM
To: Kalkoske, Donald C
Cc: Bradshaw, John B; Drown, Jeannie L; Eiche, John R
Subject: RE: Contract 3524 Airplane Markings

Delete
PS T-96

Good Morning Don,

I called Jeannie Drown in Traffic Operations- She is over all the people who check our striping sheets and do the signs. She said she/they were aware and was surprised it go out that way. A lot of retirements' going on over there. Anyway... she said we will not be installing them anymore.

Hopefully they will review with our Standards and Manuals guys and modify (for drones maybe) or pull the standard plan sheet altogether.

Thanks,

-Bill

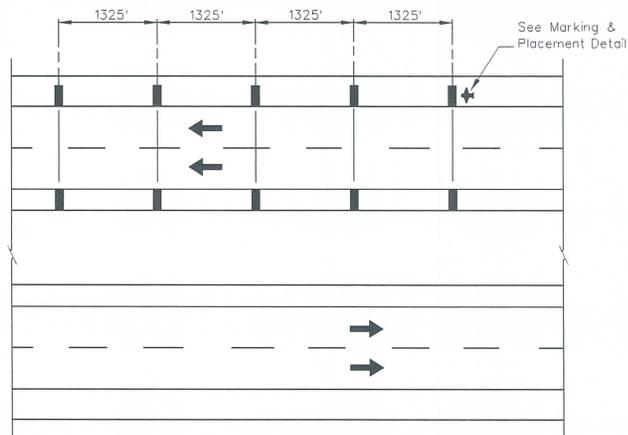
From: Kalkoske, Donald C
Sent: Friday, August 01, 2014 1:27 PM
To: Ezell, Billy D; Bradshaw, John B
Cc: Schwartz, David W
Subject: Contract 3524 Airplane Markings

Bill & John,

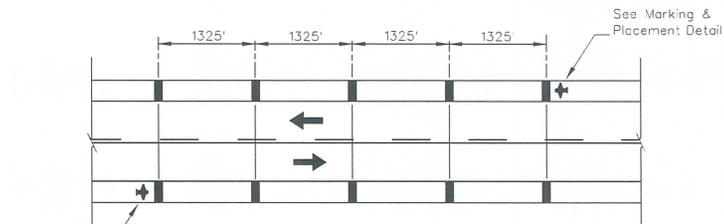
According to our standard plans, we are to contact NHP prior to installation of the airplane markings. I did this and was informed that they no longer need airplane markings as they no longer fly enforcement. So with that, we will not be installing these on Contract 3524, but also wanted to let you guys know this for future reference and to take to the appropriate division to get concurrence. If NHP doesn't use these, we don't need to install, or do we?

Thanks,

Donald C. Kalkoske
Supervisor III, Associate Engineer
Construction Crew 920
795 E. Fourth St.
Winnemucca, NV 89445
(775)623-8070 Office
(775)315-6912 Mobile
(775)623-0369 Fax

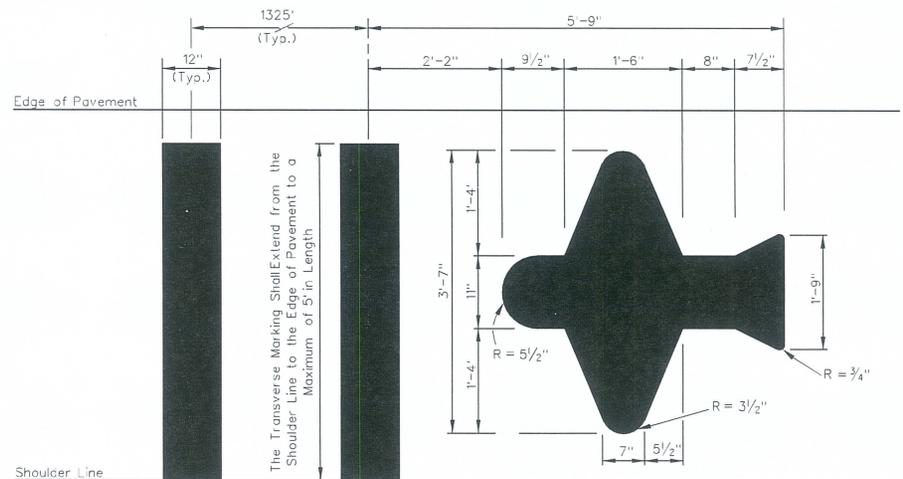


MULTILANE



TWO LANE - TWO WAY

Delete this sheet



MARKING & PLACEMENT DETAIL

(Airplane 11.5 ft²)

NOTES:

1. CONTACT NEVADA HIGHWAY PATROL PRIOR TO THE APPLICATION OF THE MARKINGS.
CONTACT: N.H.P. HEADQUARTERS - (775) 684-4867
CHIEF PILOT - (775) 721-9044
2. ALL PAVEMENT MARKINGS SHALL BE WHITE.

NEVADA DEPARTMENT OF TRANSPORTATION	
PERMANENT PAVEMENT MARKINGS AIRPLANE SPEED MONITORING SITES	
Signed Original On File	T-38.1.6 (634)
CHIEF SAFETY/TRAFFIC ENGR.	ADOPTED 8/06 REVISION

