

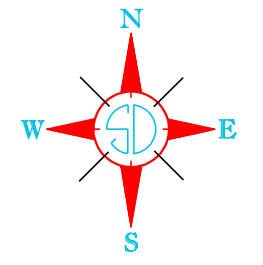
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	0009-351	1	7

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
PROJECT 0009-351
SDDOT PIERRE REGION YARD
HUGHES COUNTY

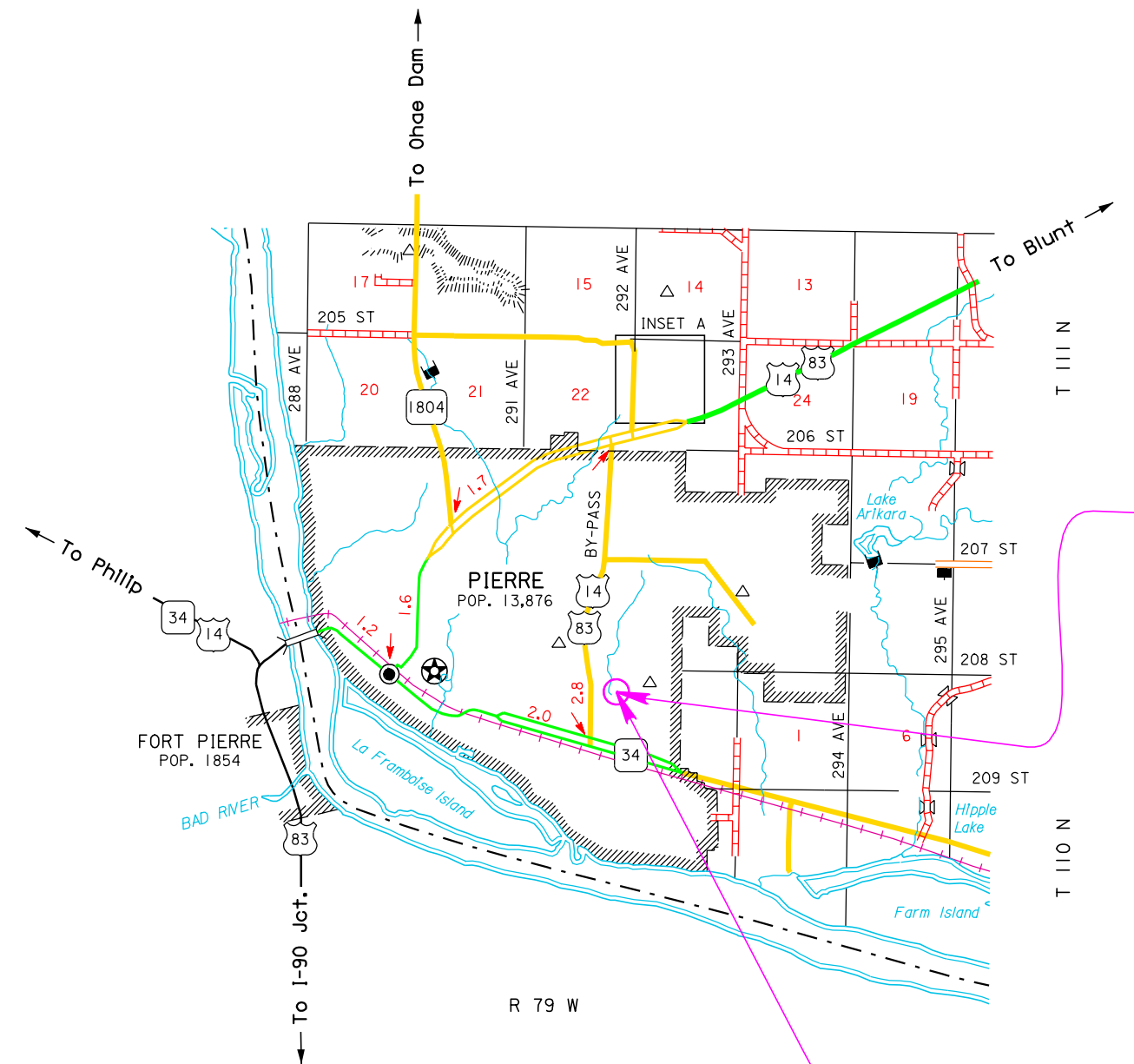
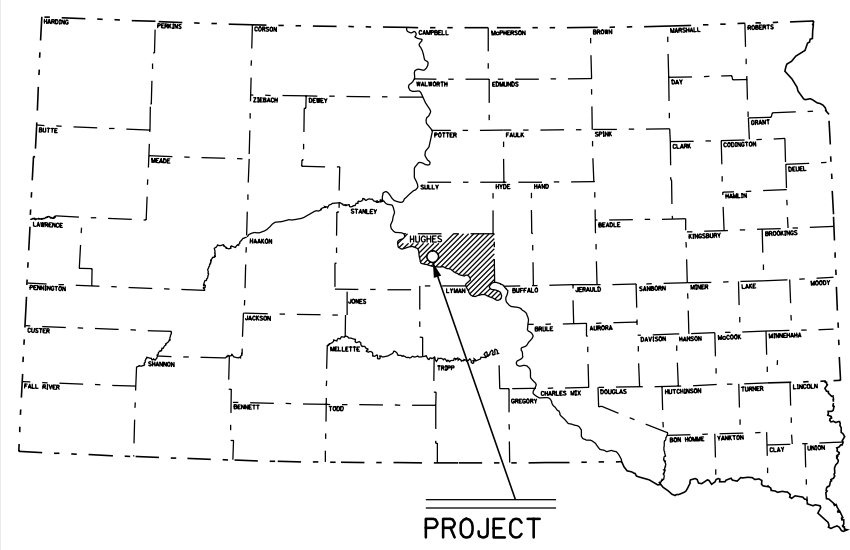
DROP INLET INSTALLATION

PCN 11yg



INDEX OF SHEETS

Sheet No. 1	General Layout and Index
Sheet Nos. 2-3	Estimate and Plan Notes
Sheet No. 4	Existing Details
Sheet No. 5	Removal Details
Sheet No. 6	New Construction Details
Sheet No. 7	Standard Plate



PROJECT 0009-351



PROJECT WORK SITE

ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0500	Remove Pipe Culvert	12	Ft
110E1010	Remove Asphalt Concrete Pavement	5.4	SqYd
110E1100	Remove Concrete Pavement	8.8	SqYd
380E6110	Insert Steel Bar in PCC Pavement	40	Each
462E0100	Class M6 Concrete	2.1	CuYd
670E1010	2' x 3' Type B Drop Inlet	2	Each
670E5200	Special Frame and Grate Assembly	2	Each

SPECIFICATIONS

Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

GENERAL NOTES

If the Contractor elects to utilize precast drop inlets and an alteration of the drop inlet is required to avoid any interference with existing utilities the changes shall be done to the satisfaction of the Engineer at no expense to the Department.

The Contractor is encouraged to inspect the site before bidding to determine the extent of work that will be required to satisfactorily complete the project.

The Contractor may store materials on the project site at a location approved by the Engineer, however the Contractor is responsible for all stored materials until all the work on the project is complete.

Concrete/asphalt shall be removed by means that will minimize damage to any adjacent concrete/asphalt remaining in place. Any concrete/asphalt that is damaged by the Contractor's operations shall be repaired by the Contractor, to the satisfaction of the Engineer, at no expense to the Department.

An inspection of the gravel cushion subgrade shall be made after removing concrete/asphalt within each removal/replacement area. Areas of excess moisture shall be dried to the satisfaction of the Engineer. The Contractor shall salvage and restore all base course (gravel cushion) material that is practical within the removal limits and then place back to achieve finished grade. It is the Contractor's responsibility to shape and compact excavated areas to the proper elevations to accommodate proper drainage of the finished concrete. If any additional gravel is required it will be furnished on site by SDDOT maintenance forces. Compaction shall be to the satisfaction of the Engineer. All costs associated with removing, salvaging, and placing the material shall be incidental to various contract items.

The Contractor shall be responsible for locating underground utilities in the construction area. Care shall be taken by the Contractor so no damage occurs to the utilities. Any damage to the utilities shall be repaired by the Contractor at no cost to the State.

SEQUENCE OF OPERATIONS

The Contractor shall submit their proposed sequence of operations for the Engineer's approval at least one week prior to the preconstruction meeting.

The Contractor may perform work during daylight hours only, unless additional hours are approved by the Engineer. Once work at the site has commenced it shall proceed in a continuous manner until the project is complete.

Traffic and access to all buildings, thru access to both sides of the fuel pumps, and all thru traffic throughout the Region Yard shall be maintained at ALL times.

SCOPE OF WORK

The work required for this project includes, but is not limited to, the following items, not listed in order of execution.

1. Saw Cut Asphalt and Concrete Pavement
2. Breakout and Remove Asphalt and Concrete
3. Install Work Area Protection
4. Remove Existing Slotted RCP
5. Install New Drop Inlets
6. Install New Frame & Grate Assemblies
7. Place and Finish New Concrete
8. Saw Cut Joints

SAWING OF EXISTING ASPHALT PAVEMENT AND PCC SLAB

The asphalt concrete pavement and PCC slab to be removed shall be sawed full depth to a true line with a vertical face. There will not be a separate payment made for sawing. All costs associated with sawing existing asphalt and concrete shall be incidental to the various contract items.

REMOVE PCC SLAB

The specified PCC slab to be removed consists of a 6 inch thick concrete pavement reinforced with #3 deformed bars (Refer to plan layouts for details).

All costs for removing the PCC slab including labor, tools, and equipment shall be incidental to the contract unit price per square yard for "Remove Concrete Pavement".

REMOVE ASPHALT CONCRETE PAVEMENT

The specified asphalt concrete pavement to be removed is approximately 5 to 8 inches thick.

All costs for removing the asphalt concrete pavement including labor, tools, and equipment shall be incidental to the contract unit price per square yard for "Remove Asphalt Concrete Pavement".

REMOVE SLOTTED RCP

The existing Slotted RCP shall be removed and disposed of within the Region Yard at a location determined by the Engineer.

All costs for removing and disposing the Slotted RCP including labor, tools, and equipment shall be incidental to the contract unit price per foot for "Remove Pipe Culvert".

TYPE B REINFORCED CONCRETE DROP INLET

The Contractor shall install the drop inlets as directed by the Engineer and as shown in the details elsewhere in the plans. The top of the bottom slab of the drop inlets shall be 18 inches below the fixed flowline of the existing HDPE pipe that is to be placed through the drop inlets.

The Contractor shall construct a watertight Class M6 concrete collar around the void that remains after the pipe has been inserted into the drop inlet. The concrete collar shall be reinforced with 6x6 W2.9 x W2.9 wire mesh.

All costs for constructing the concrete collars including materials and labor shall be incidental to the contract unit price per each for "2' x 3' Type B Drop Inlet".

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	0009-351	2	7

CONCRETE SLAB

Concrete shall be used to re-construct all asphalt and concrete removal areas and shall be 6 inch thick Class M6 concrete reinforced with #3 reinforcing deformed bars spaced as shown on the "New Construction Sheet". A 3 inch clear cover shall be used on the top bar in the bi-directional mat of reinforcing steel.

It is the Contractor's responsibility to shape and compact the excavated removal areas to the elevations necessary to provide a consistent 6 inch reinforced PCC slab that will provide a finished surface that matches the adjacent cross slopes. An acceptable profile throughout the entire replacement area shall exist to ensure positive drainage to the drop inlets.

All work shall be done to the satisfaction of the Engineer.

The Contractor may be required to use special equipment and/or hand work to feather and finish the areas to achieve the desired results of the finished surface as determined by the Engineer.

SPECIAL FRAME AND GRATE ASSEMBLY

The Contractor shall install a NEENAH R-3382 or DEETER 2501 Concave Gutter Inlet Frame and Grate, or equivalent at each drop inlet location. All costs associated with furnishing and installing the NEENAH R-3382 or DEETER 2501 Concave Gutter Inlet Frame and Grate, or equivalent shall be paid for at the contract unit price per each for "Special Frame and Grate Assembly".

Or Equal Clause

Whenever a material, article, or piece of equipment is identified on the plans by reference to manufacturers' and/or vendors' names, trade names, catalogue numbers, etc., it is intended merely to establish a standard; any materials, article, or equipment of other manufacturers and vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or equipment proposed is, in the opinion of the Engineer, of equal substance and functions. Requests for such approval must be made by submitting catalog cuts and manufacturer's specifications to the Engineer five days prior to the bid opening. The base bid shall be based on materials only as specified or approved.

GENERAL MAINTENANCE OF TRAFFIC

The Contractor shall be required to protect their work area. The entire area at each removal site shall be protected with Type III Barricades at ALL times. The barricades will be provided by the Department to the Contractor. The Contractor shall maintain the barricades in good condition and repair the barricades as needed or as directed by the Engineer. Payment for installing, maintaining and removing the barricades shall be incidental to the various contract items.

When hauling and transporting materials through the Region Yard the Contractor shall exercise care to insure all persons and property are protected.

Contractor's employees should mobilize at a location that will minimize any disruption to localized traffic throughout the DOT yard and arrive at the work site in a minimum number of vehicles necessary to perform the work.

Indiscriminate driving and parking of vehicles within the DOT yard will not be permitted. Any damage to the buildings/structures, surfacing, and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	0009-351	3	7

WASTE DISPOSAL SITE

The Department will be responsible for the disposal of all construction/demolition debris generated by this project.

SAW AND SEAL JOINTS

The perimeter of both concrete repair areas and drop inlets shall have a 3/8" wide by 5/8" deep sawed joint at the interface of the existing surfacing and the new surfacing.

The joints will be sealed by State Maintenance Forces.

All costs associated with the sawing of joints shall be incidental to the various contract items.

STEEL BAR INSERTION

The Contractor shall install a construction joint adjacent to the existing PCC slab as follows:

The Contractor shall install No. 4 x 12" deformed tie bars into drilled holes in the existing concrete slab adjacent to the new concrete PCC slab every 12 inches beginning six inches from the edge of existing slab. The diameter of the drilled holes shall not be less than 1/8 inch nor more than 3/8 inch greater than the overall diameter of the steel bar. Drilled holes in the existing slab shall be 6 inches deep.

Steel bars shall not be placed closer than 6 inches to any joint.

The steel bars shall be cut to the specified length by sawing or shearing and shall be free from burring or other deformations.

An epoxy resin adhesive must be used to anchor the steel bars in the drilled holes. The epoxy adhesive resin shall be of the type intended for horizontal applications and shall conform to the requirements of ASTM C881, Type 1, Grade 3 (equivalent to AASHTO M235, Type 1, Grade 3).

Holes drilled into the existing PCC slab shall be located at mid-depth of the slab and true and normal. The drilled holes shall be blown out with compressed air using a device that will reach to the back of the hole to ensure that all debris or loose material has been removed prior to epoxy injection.

Mix the epoxy resin as recommended by the manufacturer and apply by an injection method approved by the Engineer. If an epoxy pump is utilized, it shall be capable of metering the components at the manufacturer's designated rate and be equipped with an automatic shut-off. The pump shall shut off when any of the components are not being metered at the designated rate. Fill the drilled holes 1/3 to 1/2 full of epoxy, or as recommended by the manufacturer, prior to insertion of the steel bar. Care shall be taken to prevent epoxy from running out of the horizontal holes prior to steel bar insertion. Rotate the steel bar during insertion to eliminate voids and ensure complete bonding of the bar. Insertion of the bars by the dipping method will not be allowed.

The Contractor shall not place concrete until the epoxy has set enough to prevent steel bar movement during concrete placement as determined by the Engineer.

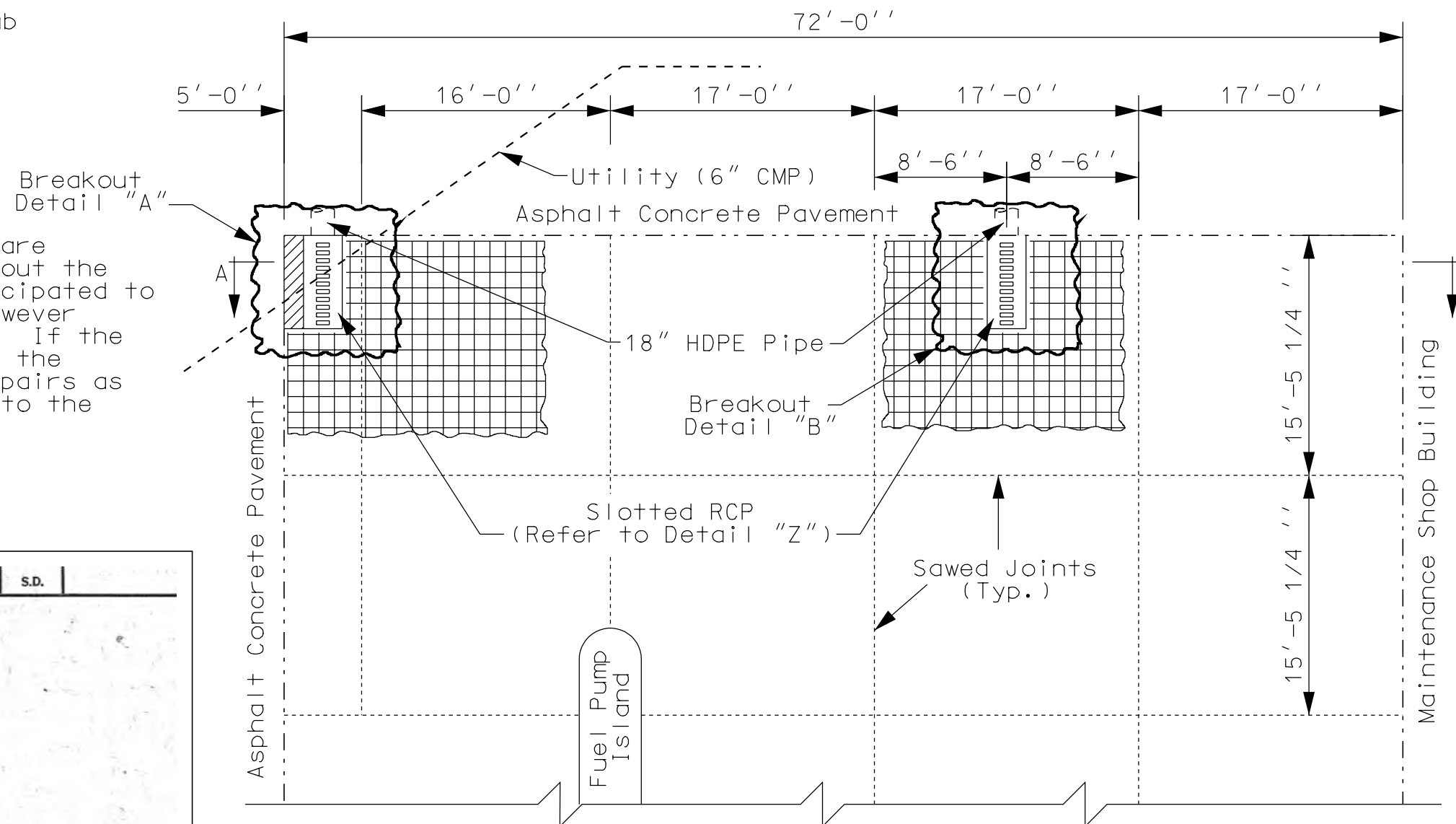
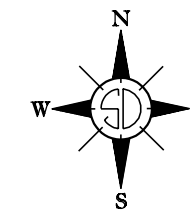
Cost for the epoxy resin adhesive, steel bars, drilling of holes, applying the adhesive, inserting the steel bars into the drilled holes and all other items incidental to the insertion of the steel bars shall be incidental to the contract unit price per each for "Insert Steel Bar In PCC Pavement".

EXISTING DETAILS

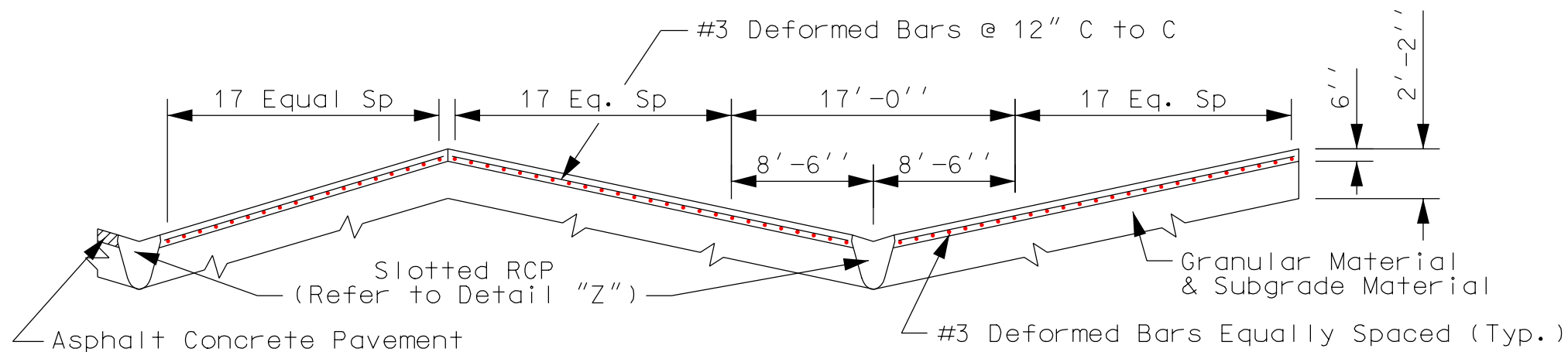
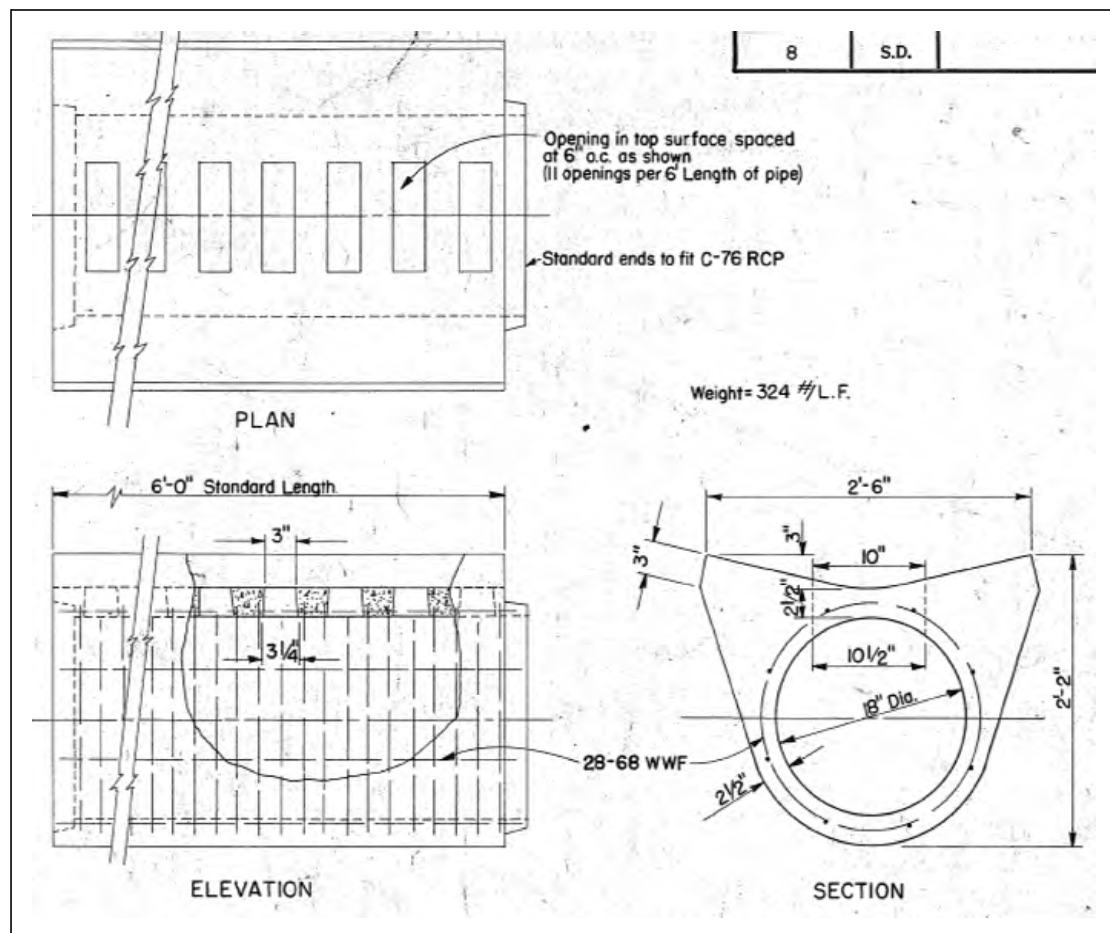
----- Limits of 6" Reinforced PCC Slab

----- ** Utility (6" CMP)

** The Contractor shall use extreme care during construction activities throughout the utility location. The utility is anticipated to be within the shown removal limits, however exact location and depth is not known. If the utility is damaged during construction the Contractor shall make the necessary repairs as determined by the Engineer at no cost to the Department.

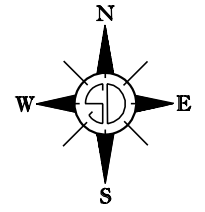


Detail "Z"



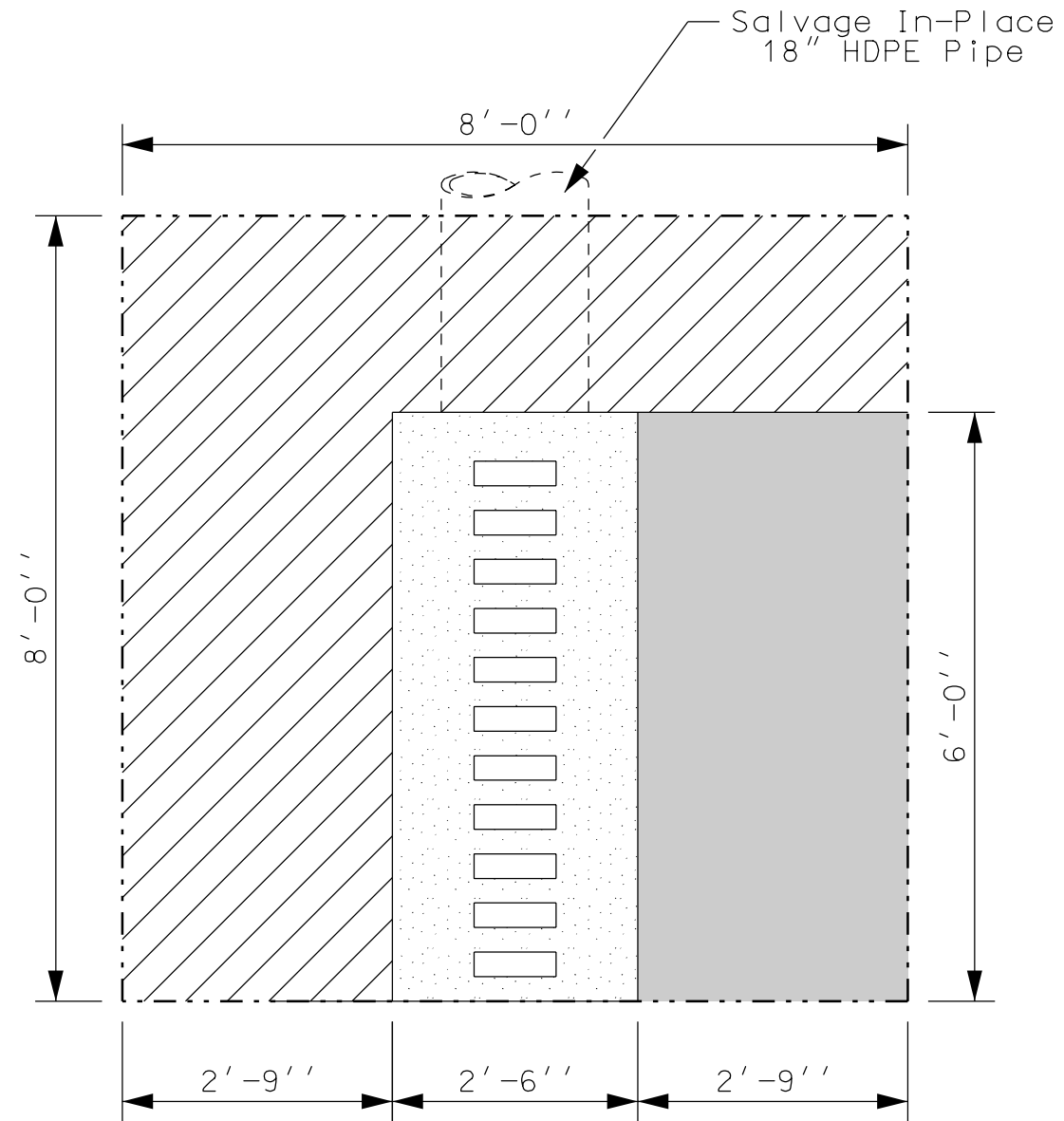
Sec A-A (Not to Scale)

REMOVAL DETAILS

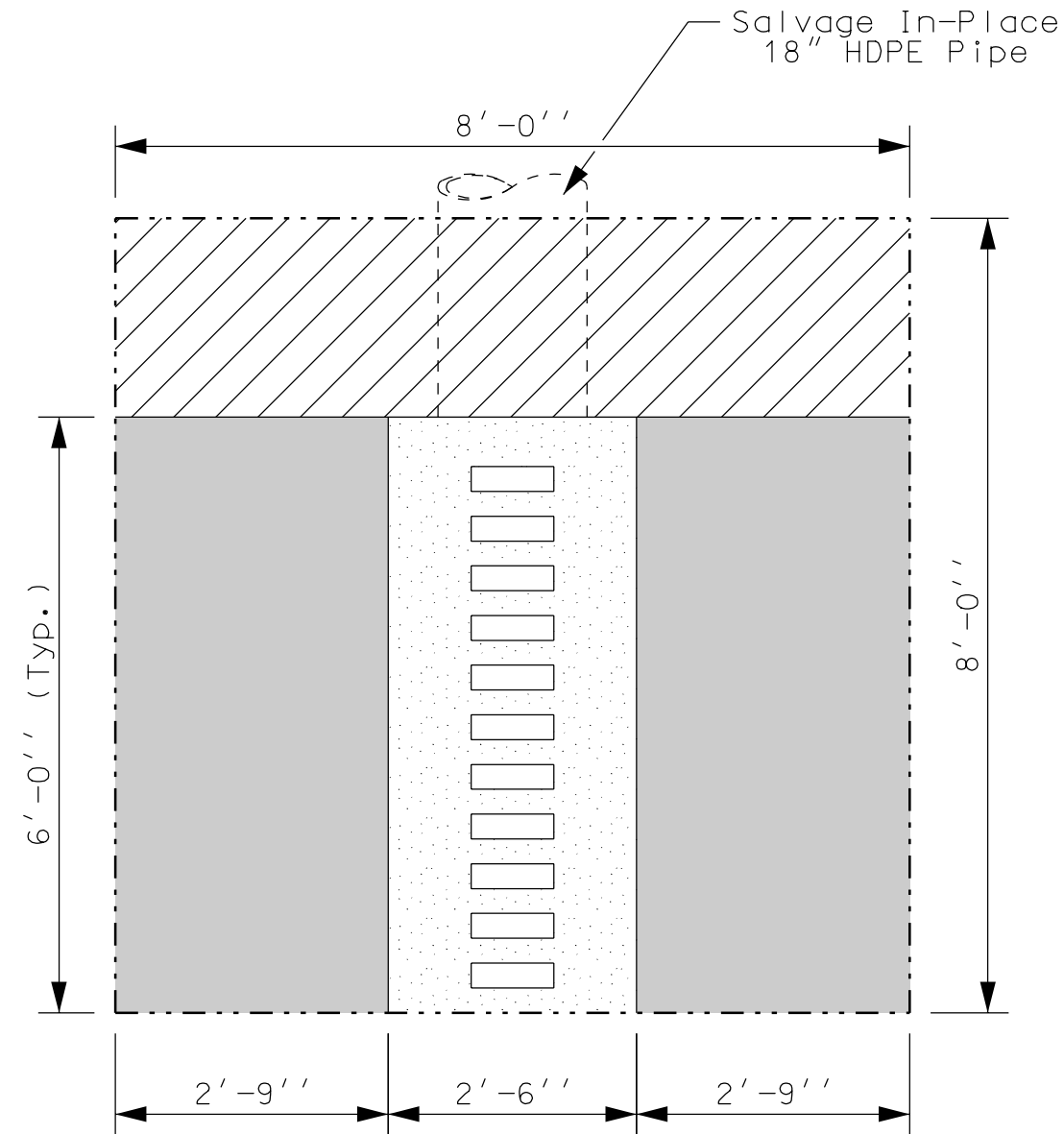


--- Removal Limits/Full Depth Saw Cut
■ Remove Concrete Pavement

▨ Remove Asphalt Concrete Pavement
▤ Remove Pipe (Slotted RCP)

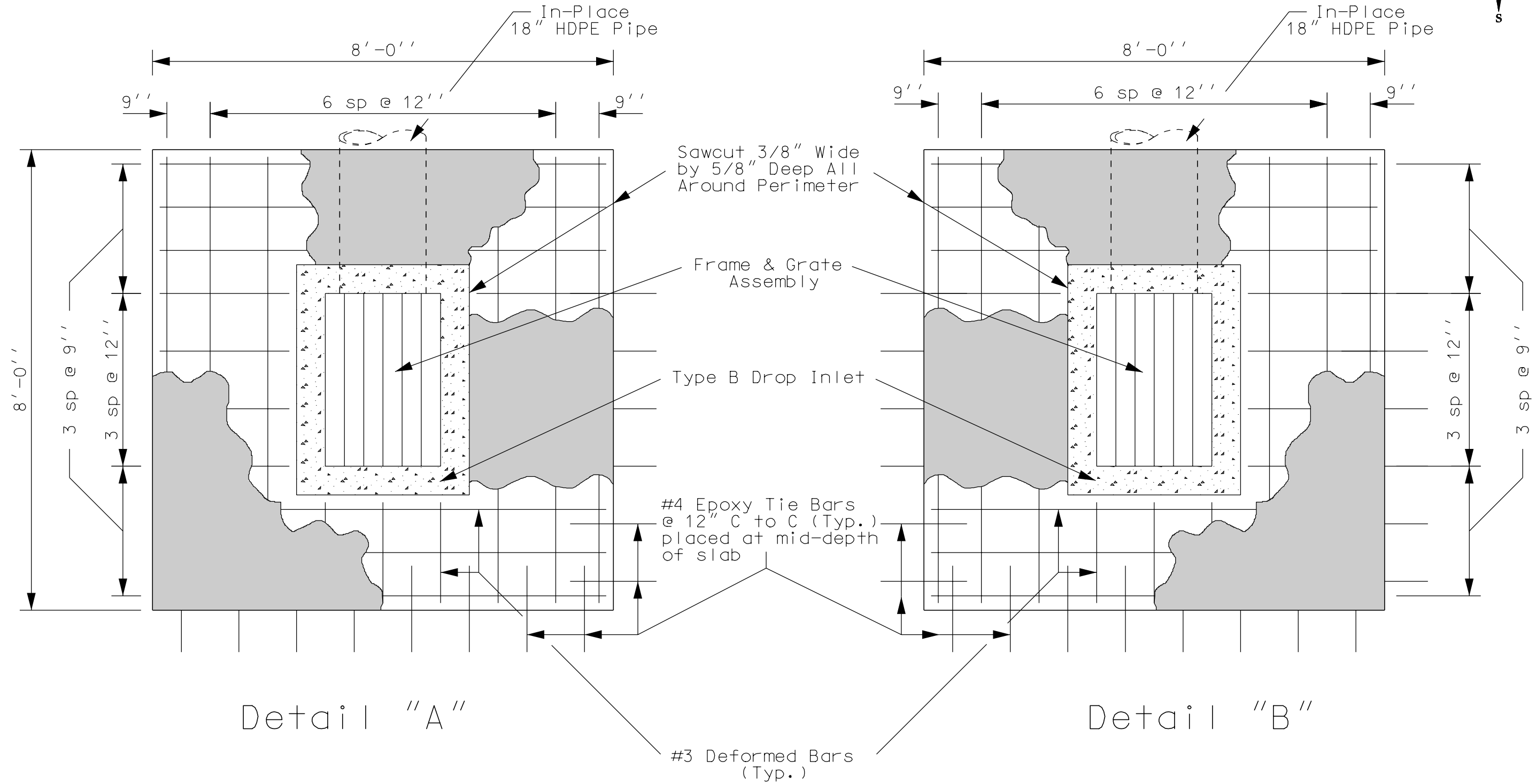
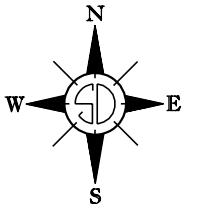


Detail "A"



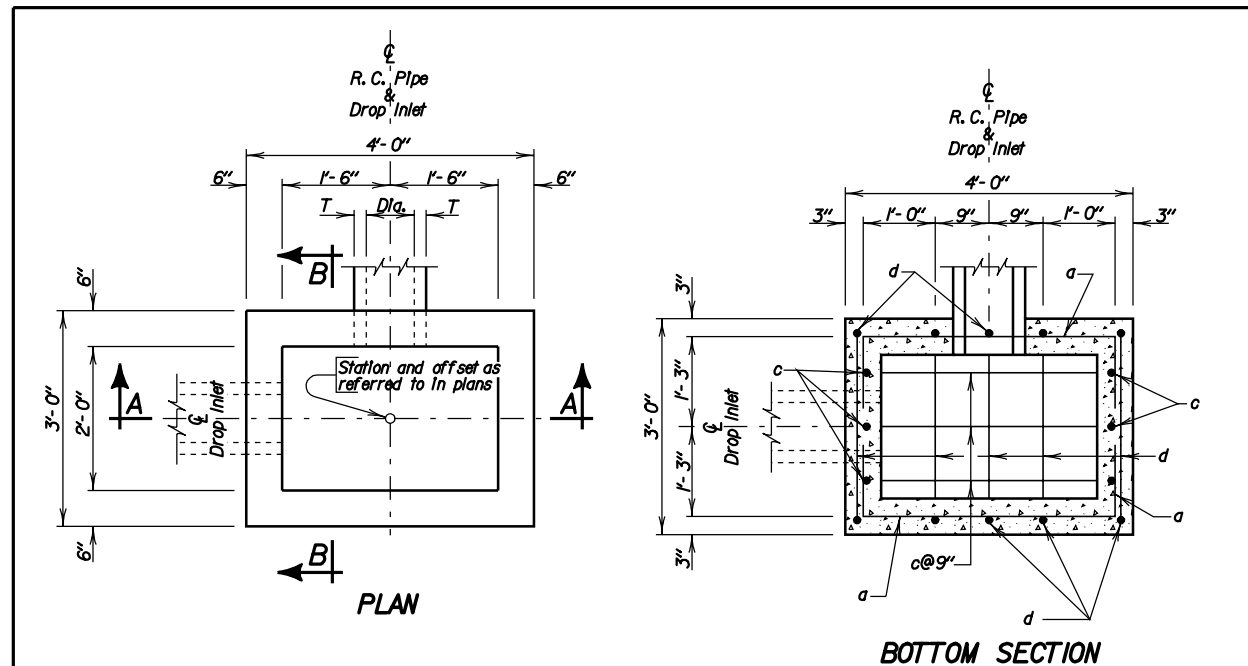
Detail "B"

NEW CONSTRUCTION DETAILS



6" Reinforced Concrete Pavement (Refer to Plan Notes for placement details and requirements)

Plotting Date: 15-JUL-2010



R.C. Pipe Diameter Inches	T Inches	Class M6 Concrete Cu'd
12	2	0.03
15	2 1/4	0.04
18	2 1/2	0.05
24	3	0.09
27	3 1/4	0.11

ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
* Class M6 Concrete	Cu'd	0.26	0.22H
Reinforcing Steel	Lb	37	20.04H
Frame and Grate Assembly	Each	1	

DROP INLETS FOR 12" TO 27" DIAMETER PIPE

GENERAL NOTES:

* Reduce total quantities of concrete by the amount of concrete displaced by the pipe. The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.

Drop Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts.

Reinforcing steel shall conform to ASTM A615 Grade 60. The b bars shall be lapped 12 Inches. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.

Pipe shall not enter through a corner of the drop inlet.

Use 2" clear cover on all reinforcing steel unless otherwise noted.

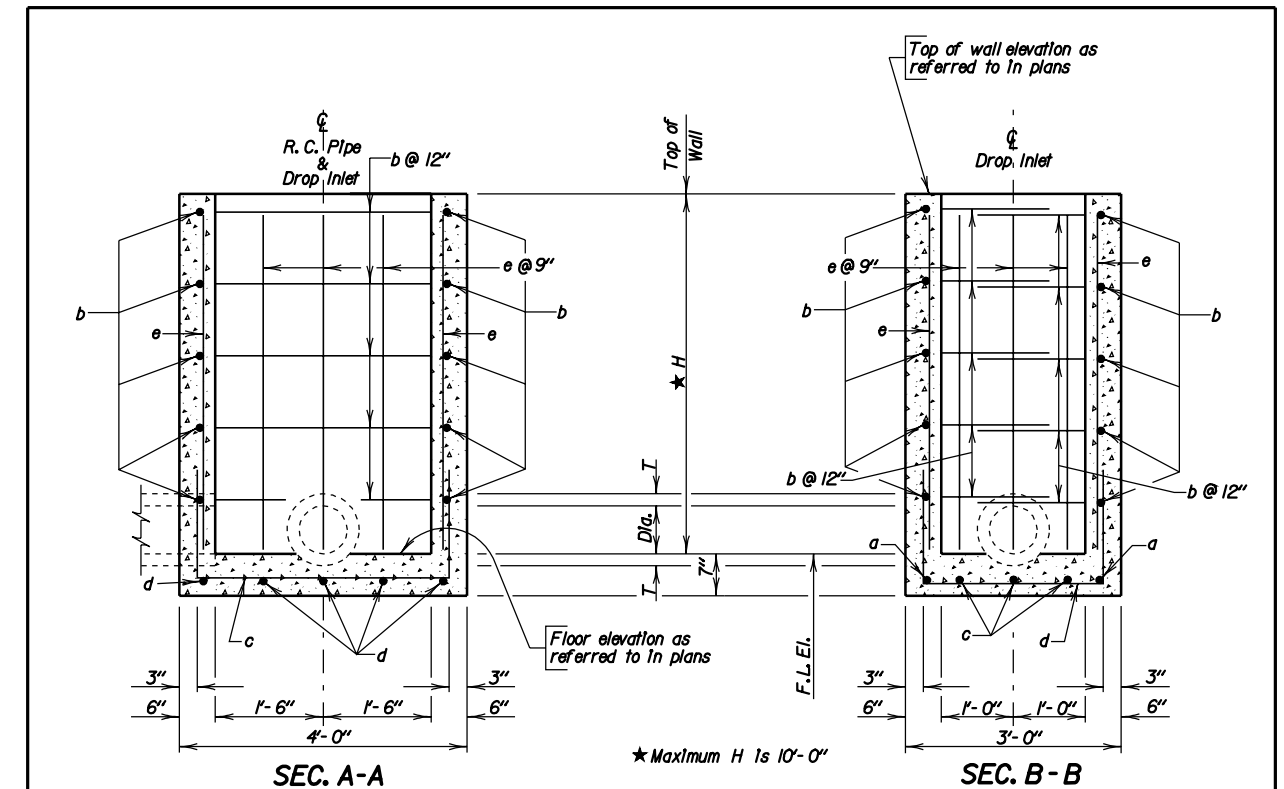
Precasting of reinforced drop inlets will be permissible. Prior to precasting, the Contractor shall submit details to the Engineer for approval.

Maximum pipe diameter shall not exceed 18 Inches on the 3 foot wide side and shall not exceed 27 Inches on the 4 foot wide side of the drop inlet.

The dimension of H is in feet.

December 23, 2009

S D D O T	2' X 3' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.01
	Published Date: 2nd Qtr. 2010	Sheet 1 of 2



DROP INLETS FOR 12" TO 27" DIAMETER PIPE

REINFORCING SCHEDULE

MK.	No.	Size	Length	Type	Bending Details	
a	2	4	5'-6"	17		
b	2H	4	7'-0"	17		
c	3	4	6'-6"	17		
d	5	4	5'-6"	17		
e	16	4	H - 2"	Str.		

NOTE:
All dimensions are out to out of bars.

December 23, 2009

S D D O T	2' X 3' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.01
	Published Date: 2nd Qtr. 2010	Sheet 2 of 2