

HOBART, INDIANA

CITY STANDARDS

City Standards Apply To Public Property & Private Property.

The Entire Set Of Full Size City Standards Shall Be Attached To The Construction Drawings And Shall Be Considered Part Thereto.

DIRECTIONS FOR USE

- 1.) Details Prepared By Outside Sources Shall Not Be Included In The Construction Drawings When Said Details Cover Work Which Is Covered By City Standards.
- 2.) Individual City Standards That Do Not Apply May Be Crossed-Out By Design Engineer Through The Placement Of A Single Large X Over The Detail. Minor Reference Notations May Be Placed Adjacent To Individual Standard Titles For Coordination However, The Standards Themselves Shall Not Be Modified In Any Way.
- 3.) Details Prepared By Outside Sources Covering Work Which Is Not Covered By City Standards Are The Sole Responsibility Of The Design Engineer And Shall Be Placed On Sheets Other Than The City Standards Sheets.
- 4.) Failure To Properly Execute The Above Directions For Use Will Not Effect The Applicability Nor The Enforcement Of The City Standards.
- 5.) City Of Hobart Shall Be Contacted When Required By Calling 219-942-6121.

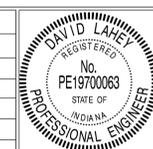
DATE OF CURRENT ISSUANCE: 10/06/2010
REVISED: 02/12/13

GENERAL NOTES

- 1.) Contractor Shall Verify The Exact Location Of All Existing Utilities At Least 24 Hours Prior To Any Construction Or Excavation. During Construction, All Utilities Shall Be Adequately Supported To Minimize Damage. The Contractor Shall Be Responsible For Repairing Or Replacing Damaged Utilities To The Satisfaction Of The City Of Hobart And The Owner Of The Affected Utility.
- 2.) Installation Of Or Provisions For The Installation Of All Underground Utilities (Including Service Laterals) To Be Placed Under Pavement Areas Shall Be Established Prior To The Construction Of The Pavement. The City Reserves The Right To Require Trenchless Construction For Crossing Of Existing Streets.
- 3.) All Benchmarks And Elevations Shall Be U.S.C. & G.S. Datum.
- 4.) Wherever Proprietary Equipment Is Specified, All Proposals For Substitution Shall Be Submitted In Writing To The Hobart Department Of Public Works (DPW) And Shall Be Subject To The Findings Of The Hobart DPW.
- 5.) Whenever A Non-Parallel Trench Opening Encroaches Within 5' Of An Existing Street Or Whenever Centerline Of Water Main Is Within 3' Of An Existing Street, Flowable Fill Shall Be Used For Trench Backfill.
- 6.) Except For Water Main Construction, Whenever A Non-Parallel Trench Opening Encroaches Within 5' Of A Proposed Street, Private Drive Or Sidewalk, Granular Backfill If Testing Confirms Compaction. #8 Crushed Stone, #8 Fractured Face Aggregate Or Flowable Fill Shall Be Used For Trench Backfill.
- 7.) For Water Main Parallel With Adjacent Pavement And Having A Centerline Of Pipe At Least 3' Behind Back-Of-Curb, Approved Backfill Material May Be Used For Trench Backfill. Whenever Centerline Of Water Main Encroaches Within 3' Of A Proposed Street, Private Drive Or Sidewalk, #8 Crushed Stone, #8 Fractured Face Aggregate, Or Flowable Fill Shall Be Used For Trench Backfill.
- 8.) Approved Excavated Material May Be Used For Backfill Outside Of Limits Specified Herein And Under Proposed Sidewalks Provided Sidewalks Are Constructed 6 Months After Backfilling Of Trench. In Order For Excavated Material To Be Approved For Backfill It Shall Be Free Of Organic Material, Rocks Larger Than 6 Inches, Frozen Material, Debris, Excessive Water, Or Other Unsuitable Material As Determined By Hobart DPW.
- 9.) Black Foundry Sand And Blast Furnace Slag Are NOT Approved For Use In The City Of Hobart.
- 10.) Whenever Granular Backfill Is Placed In A Trench, Contractor Shall Compact Material To A Minimum Of 95% Maximum Dry Density As Per AASHTO T99. The Contractor Shall Demonstrate That Compaction Is Achieved By Means Of In Place Density Tests Performed By An Independent Testing Firm. Testing Frequency Shall Be One Test Per Trench Or 1 Test Per 100 Linear Feet Of Trench, Whichever Is Greater.
- 11.) In Order To Mitigate The Impact Of Land Disturbing Activities On The Public, The City Currently Allows Two Options. Option 1: Preparation, Implementation, & Maintenance Of A Lime Stabilization Plan For Building Area, Activity Area Adjacent To Building, Access Road(s), & Staging Area Utilizing A Minimum Of 4" Of CAB No. 53 Over A Minimum Of 8" Thickness Lime Subgrade Treatment. Option 2: Preparation, Implementation, & Maintenance Of A Sufficient Washbay Area. If Option 2 Is Deemed Insufficient At The Sole Discretion Of The City Engineer, Option 1 Will Need To Be Implemented Prior To Any Other Construction Activity Proceeding At The Site.
- 12.) The Construction Of New Combined Sewers Within The City Of Hobart's Service Area Is Prohibited. New Construction That Is Tributary To An Existing Combined Sewer Shall Be Designed To Minimize Or Delay The Inflow Contribution To The Existing Combined Sewer. Where New Construction Is Served By Existing Combined Sewers, The Inflow/Clear Water Connection To The Existing Combined Sewer Shall Be Made Separate And Distinct From The Sanitary Waste Connection To Facilitate Disconnection Of The Former If A Separate Storm Sewer Subsequently Becomes Available.

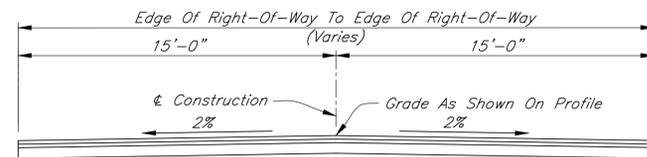
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REVISIONS		
Rev. No.	Description	Date



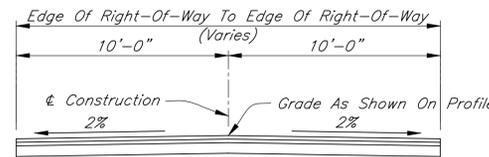
RECOMMENDED FOR APPROVAL	<i>David Lane</i> DESIGN ENGINEER	10/06/2010 DATE
APPROVED	<i>P.T. PKL</i> CITY ENGINEER	11/14/2010 DATE
APPROVED	<i>Brian K. Svedecor</i> MAYOR AND PRESIDENT - BRIAN K. SVEDECOR BOARD OF PUBLIC WORKS AND SAFETY	11/2/2010 DATE

CITY OF HOBART	SHEET
DIRECTIONS FOR USE, GENERAL NOTES	01 OF 16



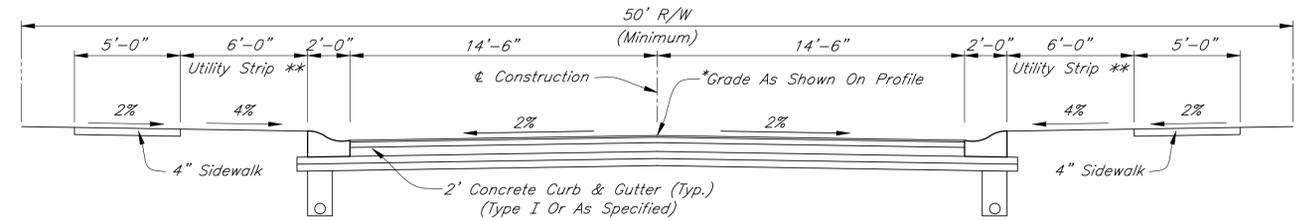
LOCAL INDUSTRIAL ALLEYS

Scale: 1/4"=1'-0"



LOCAL RESIDENTIAL ALLEYS

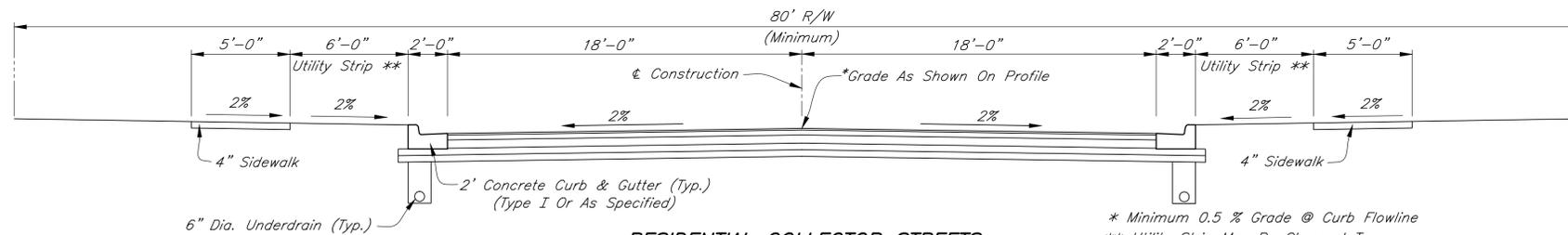
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LOCAL RESIDENTIAL STREETS

Scale: 1/4"=1'-0"

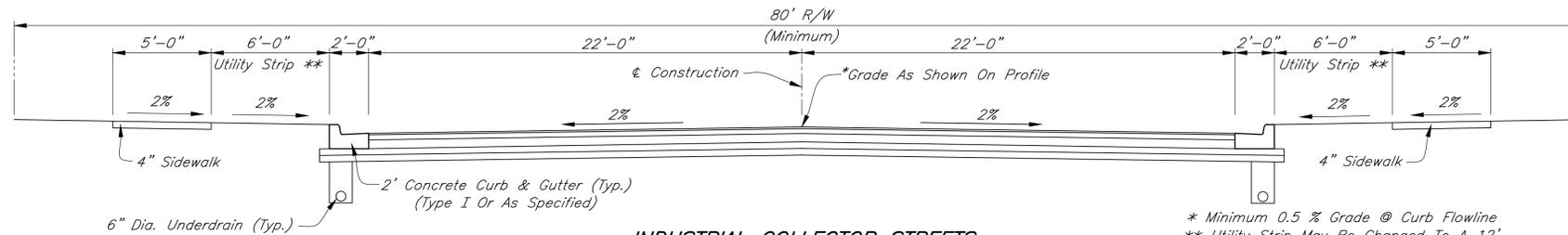
* Minimum 0.5 % Grade @ Curb Flowline
 ** Utility Strip May Be Changed To A 12' Minimum Planting Strip



RESIDENTIAL COLLECTOR STREETS

Scale: 1/4"=1'-0"

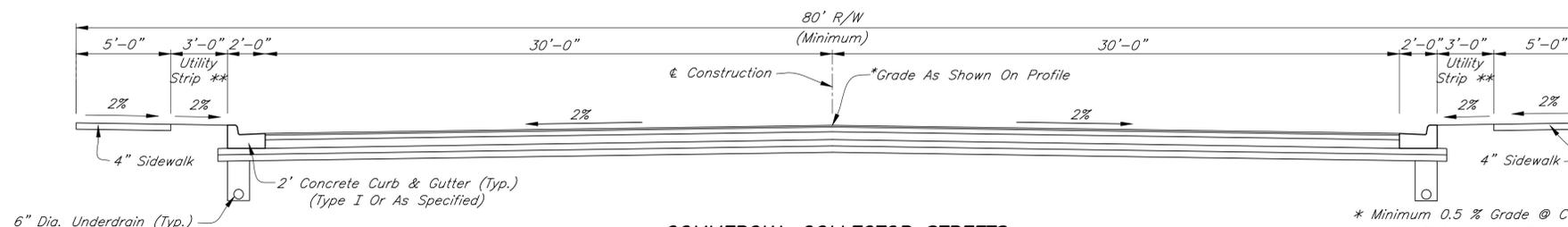
* Minimum 0.5 % Grade @ Curb Flowline
 ** Utility Strip May Be Changed To A 12' Minimum Planting Strip



INDUSTRIAL COLLECTOR STREETS

Scale: 1/4"=1'-0"

* Minimum 0.5 % Grade @ Curb Flowline
 ** Utility Strip May Be Changed To A 12' Minimum Planting Strip R/W Width Shall Be Increased Accordingly To Accommodate Planting Strip



COMMERCIAL COLLECTOR STREETS

Scale: 1/4"=1'-0"

* Minimum 0.5 % Grade @ Curb Flowline
 ** Utility Strip May Be Changed To A 12' Minimum Planting Strip R/W Width Shall Be Increased Accordingly Shall Accommodate Planting Strip

GENERAL NOTES:

- 1.) The Right-Of-Way Widths, Pavement Widths, And Easement Widths Indicated On This Sheet Are Minimum Distances Required By The City Of Hobart. Greater Widths May Be Provided. The Contractor Shall Review The Plat And The Plans To Confirm The Various Widths Indicated On This Sheet And Shall Report Any Discrepancy To The City Engineer Prior To Proceeding With Construction.
- 2.) The Location Of Proposed Utilities As Indicated Hereon Are Based Upon The Experience Of The City Of Hobart And Are So Indicated To Ensure The Orderly Development Of The Land. Strict Adherence To The Indicated Location Is Required. Requests To Change The Location Of The Proposed Utilities Shall Be Submitted In Writing To The City Engineer And The Superintendent Of Public Works. Utilities Not Meeting These Requirements Shall Be Removed And Replaced As Directed By The City Engineer.
- 3.) Arterial Streets And Divided Arterial Streets Are To Be Coordinated With The City Engineer And Shall Be In Accordance With The Minimum Design Standards Outlined By Chapter 153 Of The City Of Hobart Municipal Code.
- 4.) Local Residential Streets Require Only Stop Bars And Crosswalk Marking. Markings Shall Be Thermoplastic In Accordance With The Most Recent INDOT Standard Specification. Refer To Such Drawings Covering Pavement Markings, Street Signs, And Traffic Control Signs. A Plan Of Proposed Pavement Markings Shall Be Submitted To The Hobart DPW For Approval. For Streets Requiring Resurfacing With No. 9 Surface Overlay, Mill 8 Feet Wide Along Sides Of Street To A Depth Of 2". Overlay Terminations Shall Also Be Milled 2".

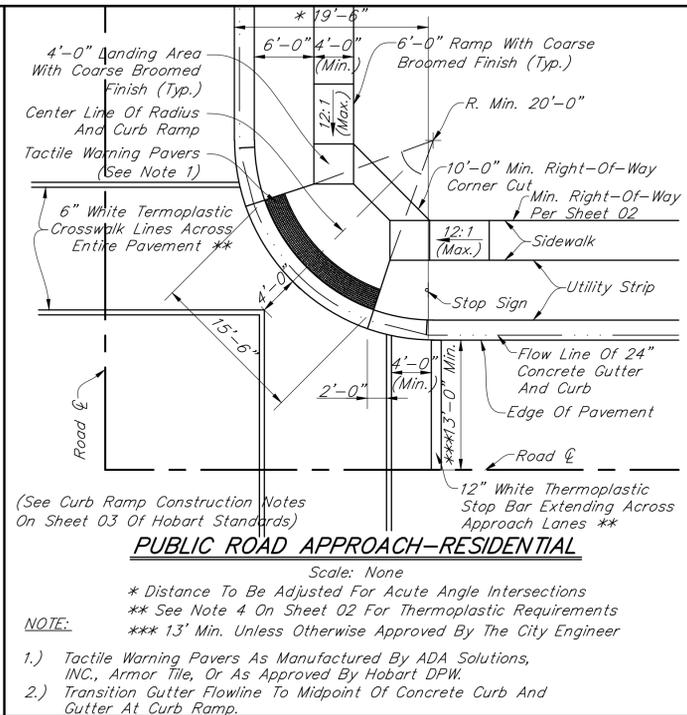
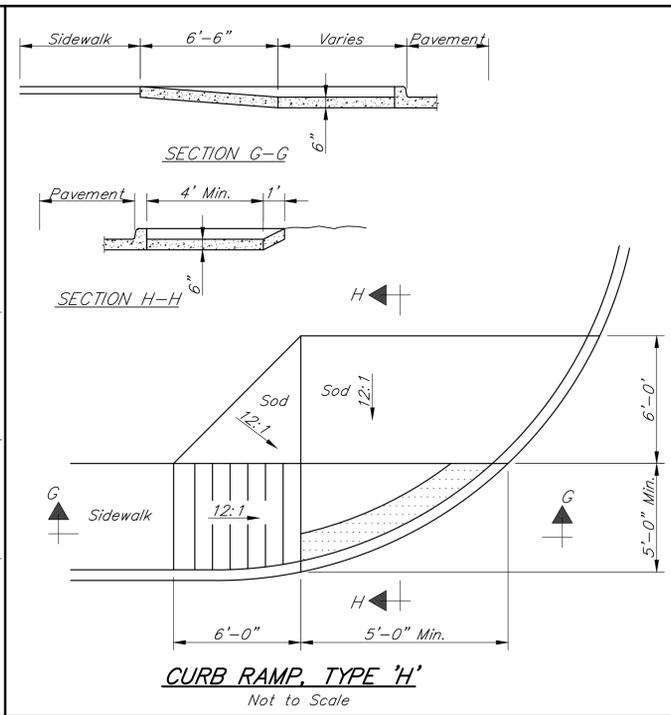
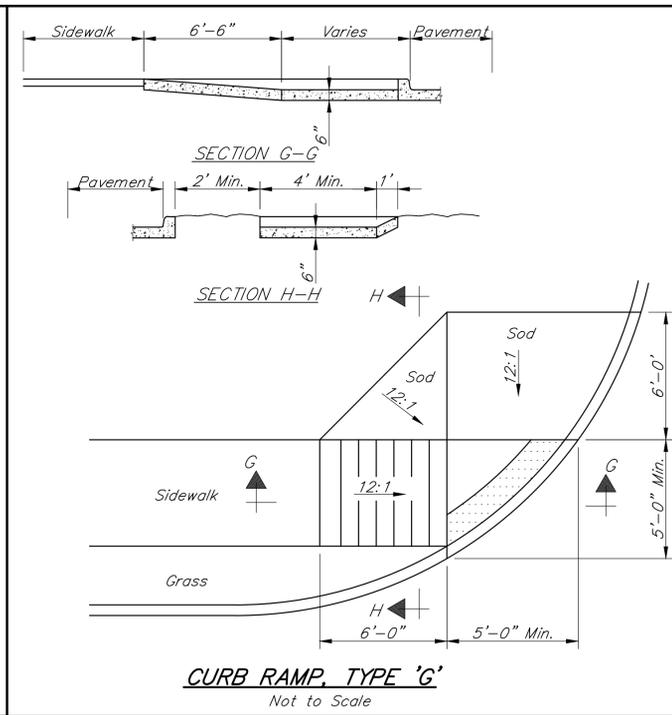
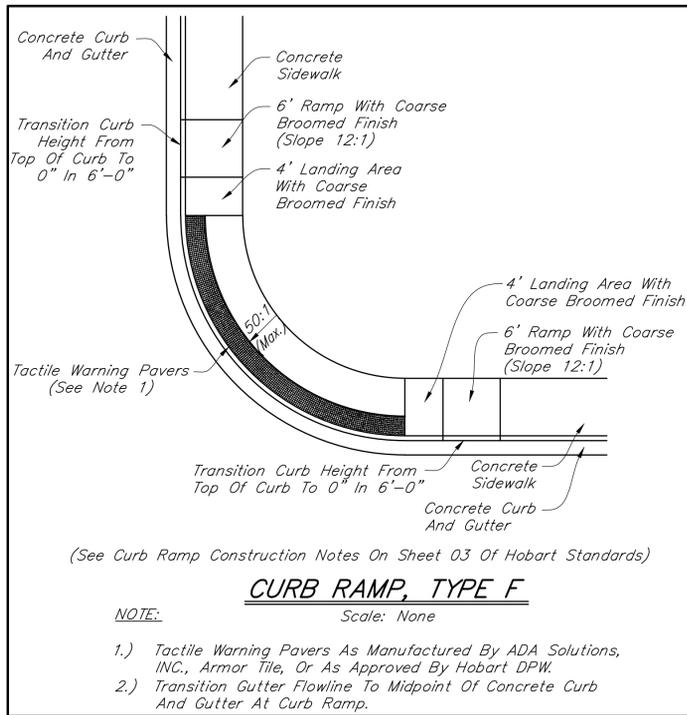
REVISIONS		
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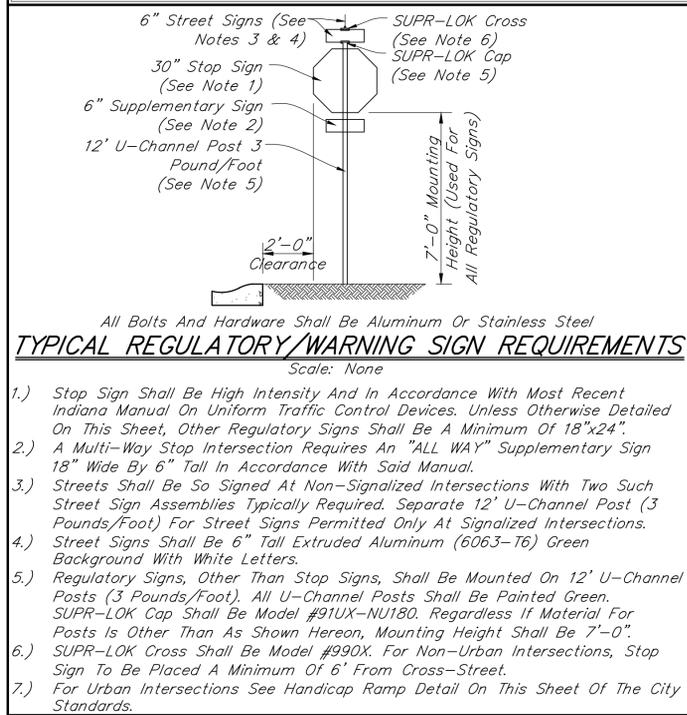
RECOMMENDED FOR APPROVAL: *David Laney* 10/01/2008
 DESIGN ENGINEER
 APPROVED: *P.T. PKL* 10/14/2010
 CITY ENGINEER
 APPROVED: *Brian K. Smedecor* 11/23/2010
 MAYOR AND PRESIDENT - BRIAN K. SMEDECOR
 BOARD OF PUBLIC WORKS AND SAFETY

CITY OF HOBART
 RIGHT-OF-WAY,
 UTILITY EASEMENT & UTILITY LOCATION
 GUIDELINES

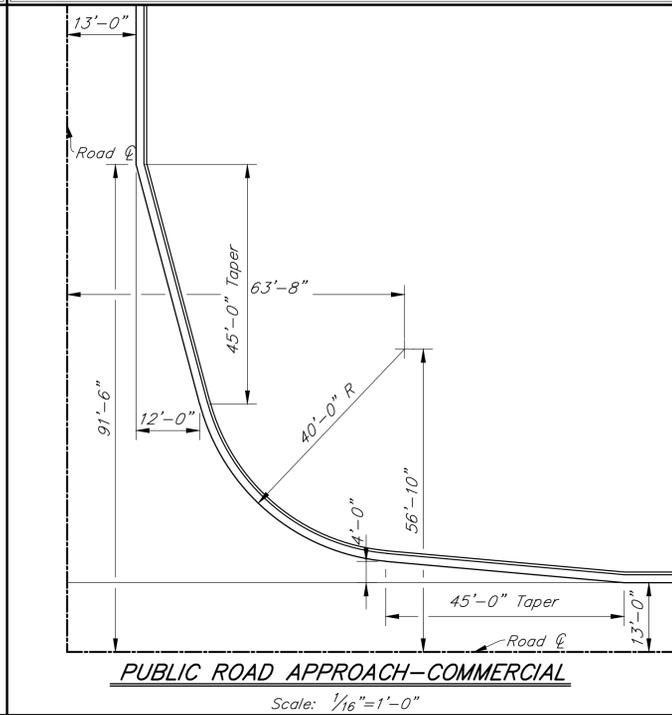
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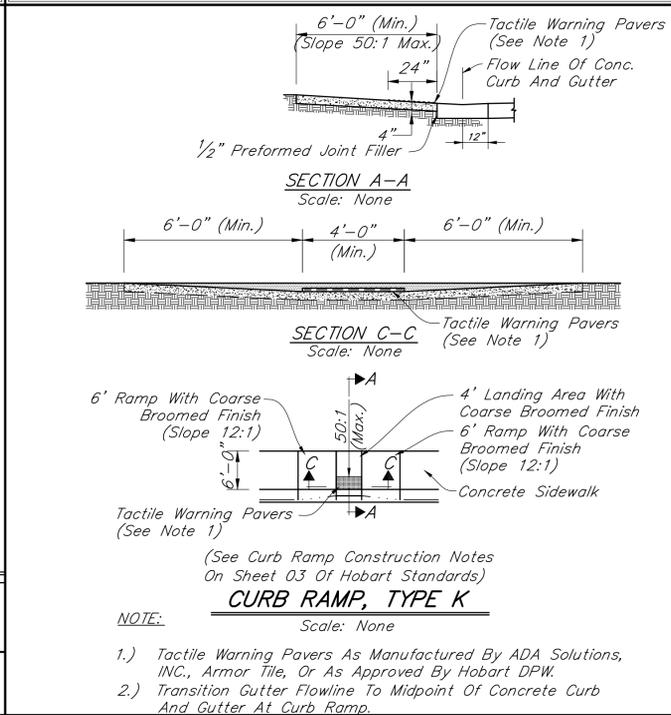
DEVELOPMENT STANDARD - DETAIL DS-R01



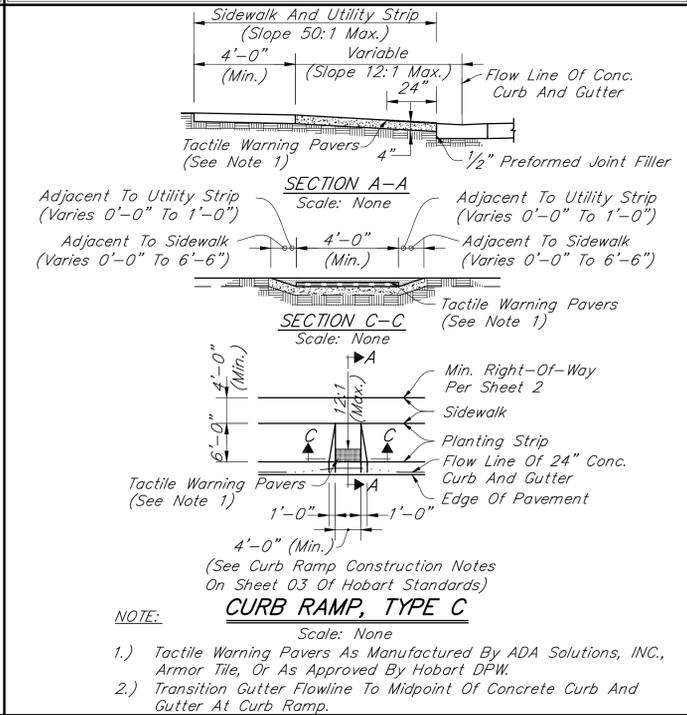
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DEVELOPMENT STANDARD - DETAIL DS-R03



DEVELOPMENT STANDARD - DETAIL DS-R04



DEVELOPMENT STANDARD - DETAIL DS-R05

DEVELOPMENT STANDARD - DETAIL DS-R06

DEVELOPMENT STANDARD - DETAIL DS-R07

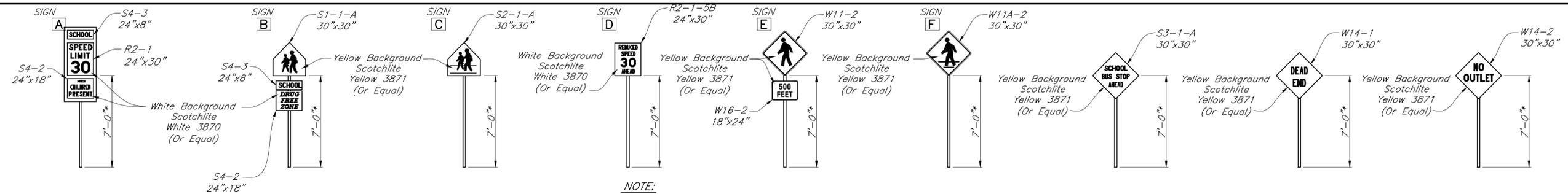
DEVELOPMENT STANDARD - DETAIL DS-R08

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	Revised -	02/12/13



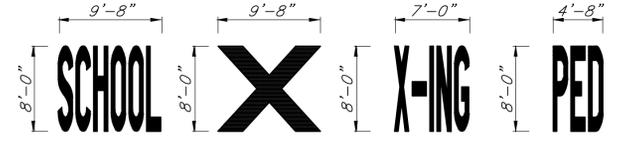
RECOMMENDED FOR APPROVAL: *[Signature]* 10/01/200
DESIGN ENGINEER
APPROVED: *[Signature]* 10/14/2010
CITY ENGINEER
APPROVED: *[Signature]* 11/2/2010
MAYOR AND PRESIDENT - BRIAN K. SNEDECOR
BOARD OF PUBLIC WORKS AND SAFETY

CITY OF HOBART
ROADWAY (R)
DEVELOPMENT STANDARDS
SHEET 04 OF 16



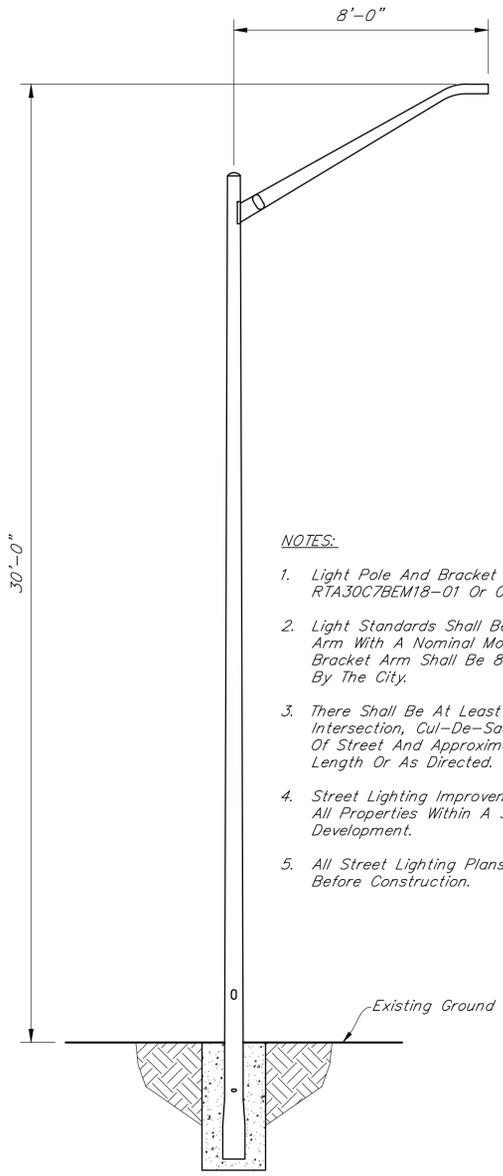
NOTE:
 * Mounting Height From Roadway Edge Of Pavement. (Typ.)
 All Black Lettering Is Scotchlite 7720 (Or Equal)

REGULATORY/WARNING SIGN DETAILS
 Scale: 1/4" = 1'-0"



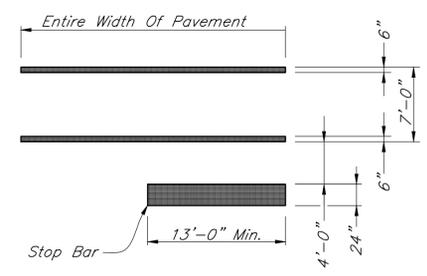
PAVEMENT MARKING DETAIL
 Scale: 1/8" = 1'-0"

- GENERAL NOTES:**
- 1.) All Regulatory Signs Shall Be High Intensity And In Accordance With The Indiana Manual On Uniform Traffic Control Devices, Most Recent Edition.
 - 2.) All Pavement Markings Shall Be White Thermoplastic And Span Across Approach Lanes.
 - 3.) Signs S3-1-A, W14-1 & W14-2 To Be Installed When Required By The City Of Hobart.
 - 4.) Where Pedestrian Cross Traffic Is Not Established, School Crossing Pavement Markings And Sign C May Be Omitted At The Discretion Of The City Engineer.

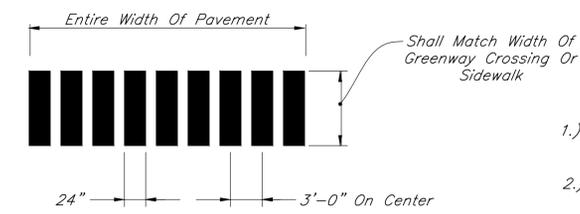


STREET LIGHTING DETAIL
 Not To Scale

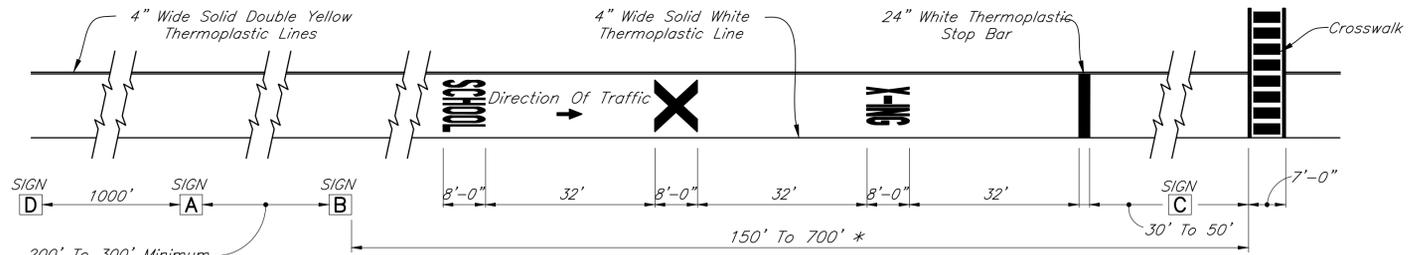
- NOTES:**
1. Light Pole And Bracket Arm Shall Be Hapco Model RTA30C7BEM18-01 Or City Approved Equal.
 2. Light Standards Shall Be An Aluminum Pole And Bracket Arm With A Nominal Mounting Height Of 30 Feet. Bracket Arm Shall Be 8 Feet Unless Otherwise Approved By The City.
 3. There Shall Be At Least One Luminaire At Each Street Intersection, Cul-De-Sac, Any Change In The Direction Of Street And Approximately Every 300 Feet Of Street Length Or As Directed.
 4. Street Lighting Improvements Shall Be Installed To Serve All Properties Within A Subdivision Or Planned Unit Development.
 5. All Street Lighting Plans Shall Be Approved By The City Before Construction.



INTERSECTION CROSSWALK DETAIL
 Scale: 1/8" = 1'-0"

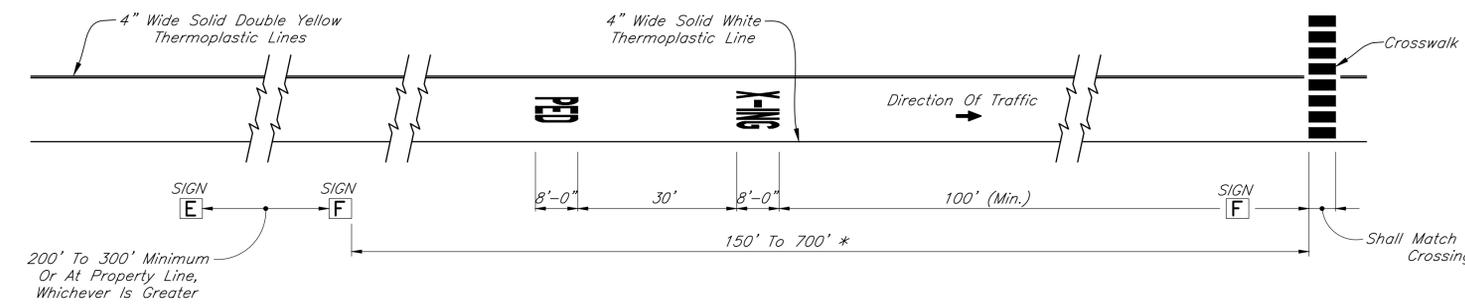


SPECIAL CROSSWALK DETAIL
 Scale: 1/8" = 1'-0"



SCHOOL ZONE APPROACH DETAIL - SINGLE LANE RURAL
 Scale: 1/16" = 1'-0"

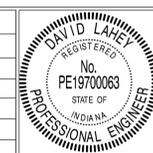
* Refer To Indiana Manual On Uniform Traffic Control Devices, Most Recent Edition



PEDESTRIAN CROSSING APPROACH DETAIL - SINGLE LANE RURAL
 Scale: 1/16" = 1'-0"

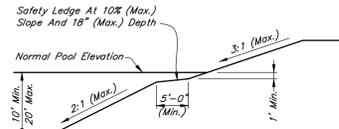
Shall Match Width Of Greenway Crossing Or Sidewalk

REVISIONS		
Rev. No.	Description	Date



RECOMMENDED FOR APPROVAL: *David Lane* 10/10/2010
 DESIGN ENGINEER
 APPROVED: *P.T. PKLH* 10/14/2010
 CITY ENGINEER
 APPROVED: *Brian K. Snedecor* 11/2/2010
 MAYOR AND PRESIDENT - BRIAN K. SNEDECOR
 BOARD OF PUBLIC WORKS AND SAFETY

CITY OF HOBART		SHEET
MISCELLANEOUS DETAILS AND NOTES		05
		OF
		16

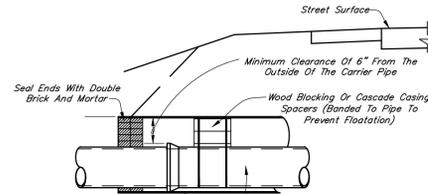


TYPICAL DETENTION POND SECTION

Not To Scale

NOTES:

- 1.) Dry Bottom Basins Shall Be Subject To The Maximum Of 3:1 Slope Above The Basin Floor. The Longitudinal Grade Shall Be Subject To The Ditch Requirements As Set Out On Sheet 08. The Transverse Grade Shall Be 2% Minimum.
- 2.) Hobart DPW May Approve Alternate Detention Pond/Basin Sections.

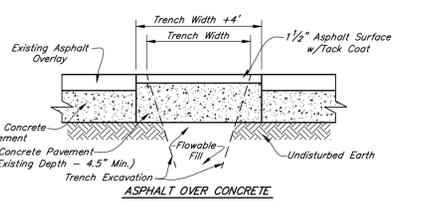
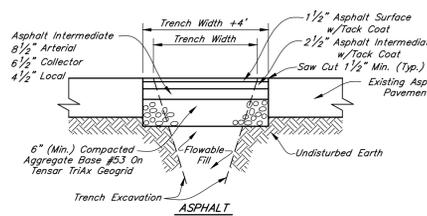
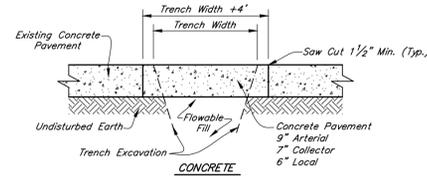


TYPICAL STREET CASING DETAIL FOR UP TO 12" CARRIERS

Not To Scale

NOTES:

- 1.) Bored Or Jacked Crossings Require Intimate Knowledge Of Site Conditions; Therefore, Construction Is Subject To Certified Special Provisions Prepared By The Design Engineer.
- 2.) Casings Depicted Hereon Do Not Necessarily Comply With INDOT Permit Requirements, But Are Intended To Be Used For Crossings Of Public Roads Under The Jurisdiction Of The City Of Hobart When Open Cut Of Such Roads Is Not Permitted.
- 3.) Refer To Appropriate Hobart Standards For Carrier Pipe Requirements.

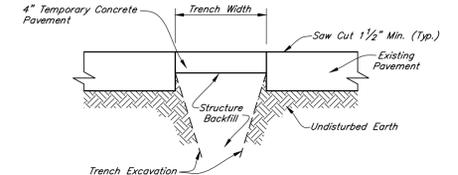


PAVEMENT RECONSTRUCTION DETAILS

Not To Scale

NOTE:

All Concrete Shall Be Air Entrained, 6 Bag Per Cubic Yard With 4,000 PSI Minimum 28 Day Strength. Concrete Surface Shall Be Broom Finished Perpendicular To Traffic Flow.



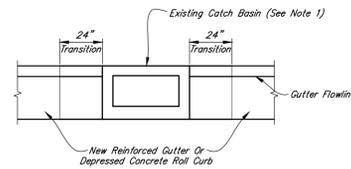
TEMPORARY PAVEMENT PATCH DETAIL

Not To Scale

NOTES:

- 1.) Steel Plate Required Over Trench To Open Roadway To Traffic. Pavement Reconstruction Or Temporary Asphalt Patch To Be Placed Within 48 Hours.

DEVELOPMENT STANDARD - DETAIL DS-G01

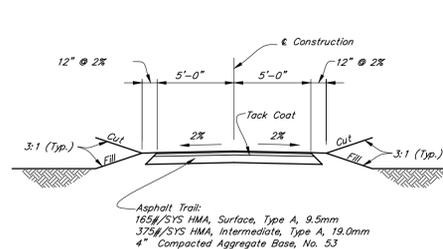


EXISTING CATCH BASIN MODIFICATION

Scale: 1/4"=1'-0"

- 1.) Existing Catch Basin Within Limits Of New Approach That Can Not Be Relocated Due To Existing Gutter Flow, As Approved By Hobart DPW.
- 2.) Provide Flat Cap And Out Structure Height As Required To Accept Casing Per DS-004.

DEVELOPMENT STANDARD - DETAIL DS-G02



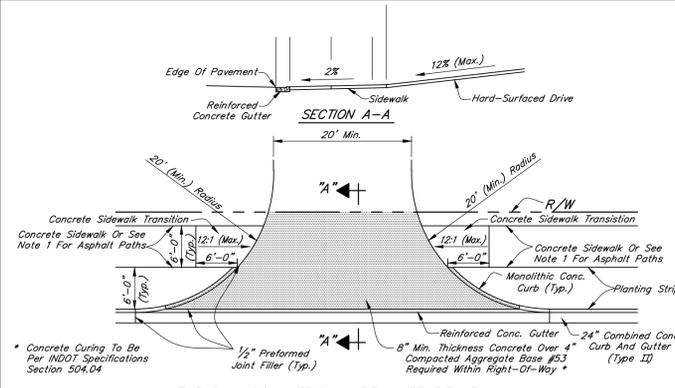
TYPICAL TRAIL CROSS SECTION

Scale: None

NOTE:

- 1.) Cross Slope Shall Be 1/4" FT. Maximum For Crows, Transitions, And Superelevations.

DEVELOPMENT STANDARD - DETAIL DS-G03



TYPICAL COMMERCIAL PRIVATE DRIVE

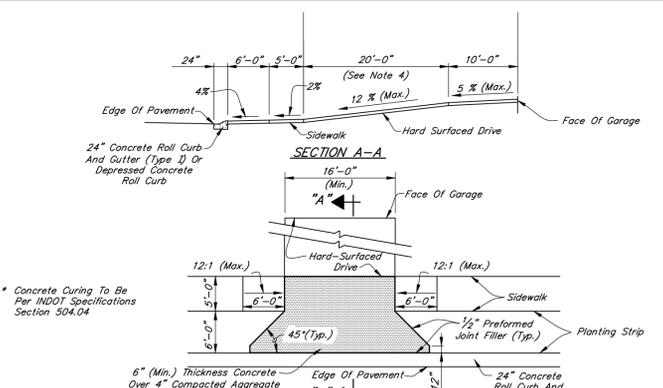
Scale: None

- 1.) Asphalt Path Terminations Within The Public Right-Of-Way At Commercial Drives, Private Drives, Or Approaches Shall Be Accomplished With A 6' Minimum Length Of Concrete Sidewalk Transition (Increase Length Of Concrete Sidewalk Transition As Required To Meet The 12:1 Maximum Slope Requirement) So That The Asphalt Path Meets The Concrete Sidewalk Transition At A Neat Line Perpendicular To The Path Alignment.
- 2.) The Maximum Algebraic Difference In Grades For Any 10 Foot Interval Shall Not Exceed 8% For Crests, Nor 10% For Sags.
- 3.) Concrete Drives Require Control Joints At A Maximum Of Every 10 Feet Each Way.
- 4.) Use Actual Setback As Shown On Plat And As Provided By The City Of Hobart Zoning Ordinance.
- 5.) Hobart DPW May Approve Alternate Paving Materials Matching Suitable Mainline Pavement.

PRIVATE DRIVE CULVERT PIPE AND END SECTIONS

- 1.) Except With The Prior Written Approval Of The City Engineer, Culvert Pipe, And End Sections For New Installations Shall Be Reinforced Concrete Pipe In Accordance With The City Standards. Zinc Coated Or Aluminum Coated Corrugated Metal Pipe Culverts, Couplers, And End Sections In Accordance With The Most Recent INDOT Specification May Be Permitted For Replacement Culverts In Areas Where Reinforced Concrete Pipe Is Used By One-Third Or Less Of 3 Properties Upstream And Downstream Of The Subject Replacement On The Same Side Of The Subject Street.

DEVELOPMENT STANDARD - DETAIL DS-G04



TYPICAL RESIDENTIAL PRIVATE DRIVE

Scale: None

- 1.) The Maximum Algebraic Difference In Grades For Any 10 Foot Interval Shall Not Exceed 8% For Crests, Nor 10% For Sags.
- 2.) Frontage Of Lots Shall Drain To Adjacent Streets Except With The Prior Approval Of Hobart DPW.
- 3.) Concrete Drives Require Control Joints At A Maximum Of Every 10 Feet Each Way.
- 4.) Use Actual Setback As Shown On Plat And As Provided By The City Of Hobart Zoning Ordinance.
- 5.) Hobart DPW May Approve Depressed Concrete Roll Curb And Alternate Paving Materials.

PRIVATE DRIVE CULVERT PIPE AND END SECTIONS

- 1.) Except With The Prior Written Approval Of The City Engineer, Culvert Pipe, And End Sections For New Installations Shall Be Reinforced Concrete Pipe In Accordance With The City Standards. Zinc Coated Or Aluminum Coated Corrugated Metal Pipe Culverts, Couplers, And End Sections In Accordance With The Most Recent INDOT Specification May Be Permitted For Replacement Culverts In Areas Where Reinforced Concrete Pipe Is Used By One-Third Or Less Of 3 Properties Upstream And Downstream Of The Subject Replacement On The Same Side Of The Subject Street.

DEVELOPMENT STANDARD - DETAIL DS-G05

DEVELOPMENT STANDARD - DETAIL DS-G06

DEVELOPMENT STANDARD - DETAIL DS-G07

DEVELOPMENT STANDARD - DETAIL DS-G08

REVISIONS		
Rev. No.	Description	Date
	Revised - 02/12/13	



RECOMMENDED FOR APPROVAL: *David Laney* 10/01/200

DESIGN ENGINEER

APPROVED: *P.T. PKLIT* 10/14/2010

CITY ENGINEER

APPROVED: *Brian K. Smedecor* 11/2/2010

MAYOR AND PRESIDENT - BRIAN K. SMEDECOR

BOARD OF PUBLIC WORKS AND SAFETY

CITY OF HOBART

GENERAL (G)

DEVELOPMENT STANDARDS

SHEET 06 OF 16

STORM SEWER REINFORCED CONCRETE PIPE

- Reinforced Concrete Pipe Shall Be Class III, IV, Or V As Specified In ASTM C76.
- Reinforced Elliptical Concrete Pipe Shall Be Class HE-III Or HE-IV As Specified In ASTM C507.
- Lift Holes Are Not Allowed For Pipe Less Than 24 Inches In Diameter. A Maximum Of Two Lift Holes Are Allowed For Pipe 24 Inches In Diameter Or Larger. Lift Holes Shall Be Repaired According To Most Recent INDOT Standard Specifications.
- Fittings And Specialties Shall Be In Accordance With The Specifications For The Type Of Pipe Being Used.
- Each Pipe Section Shall Be Marked With Date Of Manufacture, Size And Class Of Pipe, Specification Designation, Manufacturer And Plant Identification.
- Pipe Shall Be Furnished With A Bell Or Groove On One End Of A Unit Of Pipe And A Spigot Or Tongue On The Adjacent End Of The Adjoining Pipe. All Joints Shall Have A Groove On The Spigot For Placement Of A Rubber "O"-Ring Or Profile Gasket In Accordance With ASTM C443. The Gasket Shall Be A Continuous Ring Which Fits Snugly Into The Annular Space Between The Overlapping Surfaces Of The Assembled Pipe Joint.
- Precast Flared Reinforced Concrete End Sections Shall Be Used At Exposed Pipe Ends. Concrete Toe Anchors Shall Be Required. Revetment Riprap In Accordance With The Most Recent INDOT Channel Design Guide Set On Geotextile In Accordance With The Most Recent INDOT Standard Specifications Shall Be Required At Inlet And Outlet Precast Flared Reinforced Concrete End Sections.

STORM SEWER POLYVINYL CHLORIDE (PVC) PIPE

- Pipe Diameters Of 12 Inches Through 15 Inches Shall Meet Or Exceed All The Requirements Of ASTM D3034, And Shall Have A Minimum Cell Classification Of 12454. Reference Should Be Made To ASTM D1784 For A Summarization Of Cell Class Properties. Pipe Diameters Greater Than 15 Inches Shall Meet Or Exceed All Requirements Of ASTM F679, And Shall Have A Minimum Cell Classification Of 12454. PVC Ribbed Sewer Pipe Shall Meet Or Exceed All Requirements Of ASTM F794, And Shall Have A Minimum Cell Classification Of 12454.
- The Minimum Wall Thickness Of Pipe, 12 Inches Through 15 Inches In Diameter Shall Conform To SDR-26, Type PSM, As Specified In ASTM D3034. The Minimum Wall Thickness For Pipe Diameters Greater Than 15 Inches Shall Conform To PS 115 As Specified In ASTM F679. PVC Pipe Shall Have A Minimum Pipe Stiffness Of 115 Pounds Per Square Inch For Each Diameter When Measured At Five Percent Deflection And Tested In Accordance With ASTM D2412.
- Pipe Joints Shall Have A Bell Wall, Gasket Groove, And Spigot Which Are Integral With The Pipe. The Assembly Of Joints Shall Be In Accordance With The Pipe Manufacturer's Recommendations And ASTM D3212. No Solvent Cement Joints Shall Be Allowed. Gasket Material Shall Be Constructed Of Styrene Butadiene Or Butyl Rubber And Meet The Requirements Of ASTM F477.
- Each Pipe Section Shall Be Marked With Name Of Manufacturer, Trademark Or Tradename, Nominal Pipe Size, Production/Extrusion Code, Material And Cell Classification, And ASTM Number.
- Installation Shall Be In Accordance With Recommended Practice ASTM D2321.
- Precast Flared Reinforced Concrete End Sections Shall Be Used At Exposed Pipe Ends. Concrete Toe Anchors Shall Be Required. Revetment Riprap In Accordance With The Most Recent INDOT Channel Design Guide Set On Geotextile In Accordance With The Most Recent INDOT Standard Specifications Shall Be Required At Inlet And Outlet Precast Flared Reinforced Concrete End Sections.

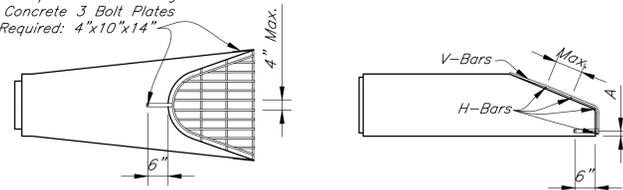
STORM SEWER GENERAL NOTES

- Storm Sewer Pipe Of Other Material Or Material Not Meeting These Specifications Shall Require The Prior Written Approval Of Hobart DPW.
- The Contractor Shall Submit Information To The City Engineer Showing Conformance With These Specifications Upon Request.
- As-Built Drawings Shall Be Submitted To Hobart DPW And City Engineer.
- The Centerline Of Storm Water Quality Structures Shall Be Located As Required So As To Be Within 15' From Edge Of Pavement. Structure Cone Sections Shall Be Rotated Towards The Street.

STORM SEWER DEFLECTION TESTING AND TELEVISION

- Deflection Testing Is Required For All Mainline Flexible Pipe And Hobart DPW Shall Be Given 24 Hour Written Notice Of Deflection Testing. An Allowable Deflection Of 5 Percent Inside Pipe Diameter Will Be Acceptable After All Backfilling Has Been In Place For 30 Days. A Nine-Point "Go-No-Go" Mandrel Shall Be Used For The Deflection Test. A Proving Ring Shall Be Provided For Each Mandrel. All Pipe Exceeding The Allowable Deflection Shall Be Televised To Determine The Extent Of Replacement Or Rerouting Required. The Reworked Section Shall Be Retested 30 Days After Completion. Contractor Shall Bear All Testing Costs. The "Go-No-Go" Mandrel Shall Be Manually Pulled Without The Use Of Mechanical Devices.
- Televising Is Required For Pipe That Fails Mandrel Testing And Hobart DPW Shall Be Given 24 Hour Written Notice Of Televising. A Camera Equipped With Remote Control Devices To Adjust Light Intensity And 1,000 Linear Feet Of Sewer Cable Shall Be Provided. The Camera Shall Transmit A Continuous Image To The Television Monitor As It Is Being Pulled Through Pipe. The Image Shall Be Clear Enough To Enable The City Of Hobart Representative And Others Viewing The Monitor To Easily Evaluate The Interior Condition Of The Pipe. The Camera Shall Stamp The Video Tape With Linear Footage And Project Number, And An Audio Voice-Over Shall Be Made During The Inspection Identifying Problems. Contractor Shall Bear All Televising Costs.
- The Pipe Shall Be Thoroughly Cleaned Before Installing Camera And Commencing Televising.
- If Any Pipe And/Or Joint Is Found To Be Leaking In Such A Way As Soil Migration Is Likely In The Sole Judgment Of The City, The Contractor Shall Repair That Portion Of The Work To The Satisfaction And Approval Of The City Of Hobart.

Bolt To Apron 6" From Edge Of Concrete 3 Bolt Plates Required: 4"x10"x1/4"

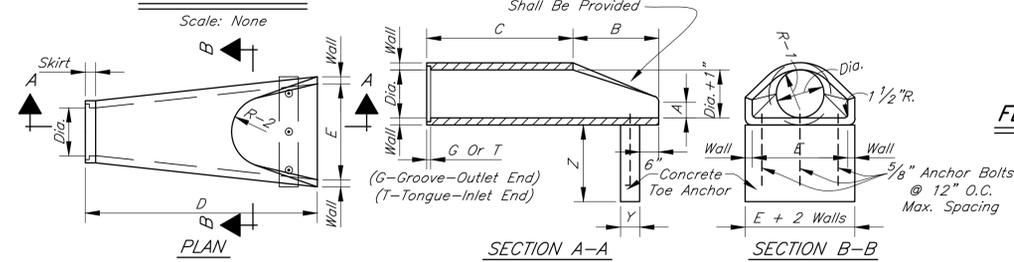


APRON SIZE	V-BAR SIZE (Ø)	H-BAR SIZE (Ø)	No. OF H-BARS	BOLT DIA.	"A" DIM
12	1/2	3/8	3	1/2	4
15	1/2	3/8	3	1/2	4 1/2
18	1/2	3/8	4	1/2	4 1/2
21	1/2	3/8	4	1/2	5
24	3/8	3/4	4	1/2	5
27	3/8	3/4	4	1/2	5 1/2
30	3/8	3/4	4	1/2	5 1/2
36	3/4	1	4	3/4	8
42	3/4	1	4	3/4	8
48	3/4	1	5	3/4	8
54	3/4	1 1/2	5	3/4	8
60	3/4	1 1/2	5	3/4	8
66	3/4	1 1/2	5	3/4	8
72	3/4	1 1/2	5	3/4	9
84	3/4	1 1/2	5	3/4	10
90	3/4	1 1/2	5	3/4	10

NOTES:

- Bars & Plates Are Hot-Rolled Steel.
- Bars, Plates, & Pipes Are Finished With 2 Coats Of Aluminum Paint.
- Bolts Are Galvanized.

ANIMAL GUARD

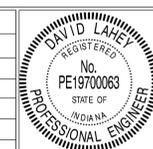


DIA.	WALL	G or T	WT. SEC.	A	B	C	D	E	DIA.+1"	R-1	R-2	SKIRT	Y	Z
12	2	1 1/2	530	4	24	48 7/8	72 7/8	24	13	10 1/16	9	3 1/2	12	24
15	2 1/4	2	740	6	27	46	73	30	16	12 1/2	11	3 1/2	12	24
18	2 1/2	2 1/2	990	9	27	46	73	36	19	15 1/2	12	4	12	24
21	2 3/4	2 1/2	1280	9	35	38	73	42	22	16 1/8	13	4	12	36
24	3	2 1/2	1520	9 1/2	43 1/2	30	73 1/2	48	25	16 1/16	14	4 1/2	18	36
27	3 1/4	2 1/2	1930	10 1/2	48	25 1/2	73 1/2	54	28	17 3/4	14 1/2	4 1/2	12	36
30	3 1/2	3	2190	12	54	19 3/4	73 3/4	60	31	18 3/16	15	5	12	36
33	3 3/4	3 1/8	3150	13 1/2	58 1/2	39 1/4	97 3/4	66	34	20 3/4	17 1/2	5 1/2	18	36
36	4	3 1/2	4100	15	63	34 3/4	97 3/4	72	37	24 1/16	20	5 1/2	18	36
42	4 1/2	3 3/4	5380	21	63	35	98	78	43	27 1/4	22	5 1/2	24	36
48	5	4 1/4	6550	24	72	26	98	84	49	28 1/8	22	5 3/4	24	36
54	5 1/2	4 3/4	8040	27	65	35	100	90	55	32 1/8	24	6 1/4	30	36
60	6	5	8750	30	60	39	99	96	61	36 3/4	24	6 3/4	30	36
66	6 1/2	5 1/2	10630	24	78	21	99	102	67	35 1/16	24	7 1/4	30	36
72	7	6	12520	34	78	21	99	108	73	38 3/8	24	7 3/4	36	36
78	7 1/2	6 1/2	14430	24	78	21	99	114	79	41 13/16	24	8 1/2	36	36
84	8	7	16350	24	78	21	99	120	85	44 1/16	24	9	39	36

PRECAST CONCRETE PIPE END SECTION

Scale: None

Rev. No.	Description	Date

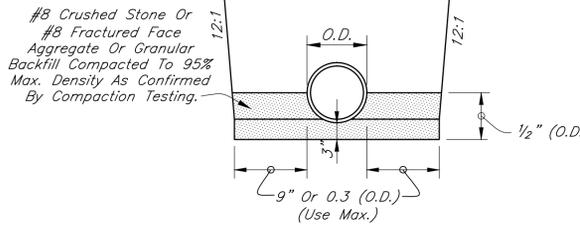


RECOMMENDED FOR APPROVAL: *[Signature]* 10/01/00
 DESIGN ENGINEER
 APPROVED: *[Signature]* 10/14/2010
 CITY ENGINEER
 APPROVED: *[Signature]* 11/23/10
 MAYOR AND PRESIDENT - BRIAN K. SNEDECOR
 BOARD OF PUBLIC WORKS AND SAFETY

CITY OF HOBART
STORM SEWER BEDDING DETAILS AND NOTES
 SHEET 07 OF 16

Finished Ground; However, Contractor Shall Coordinate Grade To Ensure Proper Pavement Section Or To Allow Placement Of Approved Loam Material To A Depth Of 8" For Seeding Or Sodding.

Whenever A Non-Parallel Trench Opening Encroaches Within 5' Of A Proposed Street, Private Drive Or Sidewalk, Granular Backfill If Testing Confirms Compaction, #8 Crushed Stone Or #8 Fractured Face Aggregate Or Flowable Fill Shall Be Used For Trench Backfill. Whenever A Non-Parallel Trench Opening Encroaches Within 5' Of An Existing Street, Flowable Fill Shall Be Used For Trench Backfill.



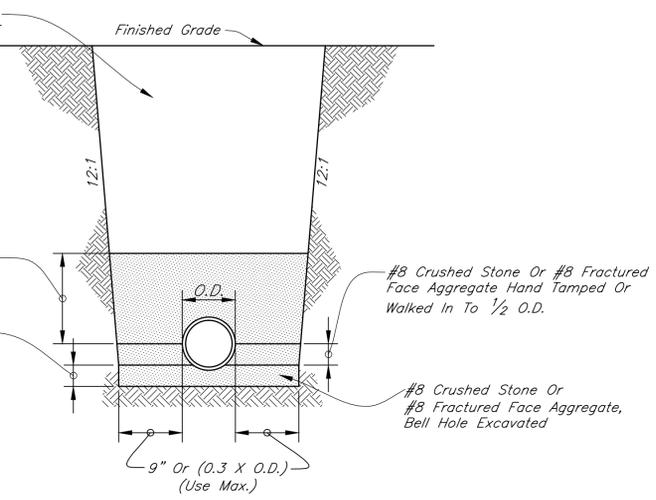
RCP PIPE BEDDING DETAIL

Scale: None

Structure Backfill According To INDOT Specification 211 When Trench Opening Encroaches Within 5' Of An Existing Or Proposed Street Or Sidewalk. Approved Backfill Material Outside Of Structure Backfill Limits. Approved Backfill Material May Be Used Under Proposed Sidewalks Provided Sidewalks Are Constructed 6 Months After Backfilling Of Trenches Up To 6' Deep, 8 Months For Trenches 6'-10' Deep, 10-12 Months For Trenches Greater Than 10' Deep.

#8 Crushed Stone Or #8 Fractured Face Aggregate Hand Tamped Or Walked In To (1/2 O.D.)+12" Above Top Of Pipe

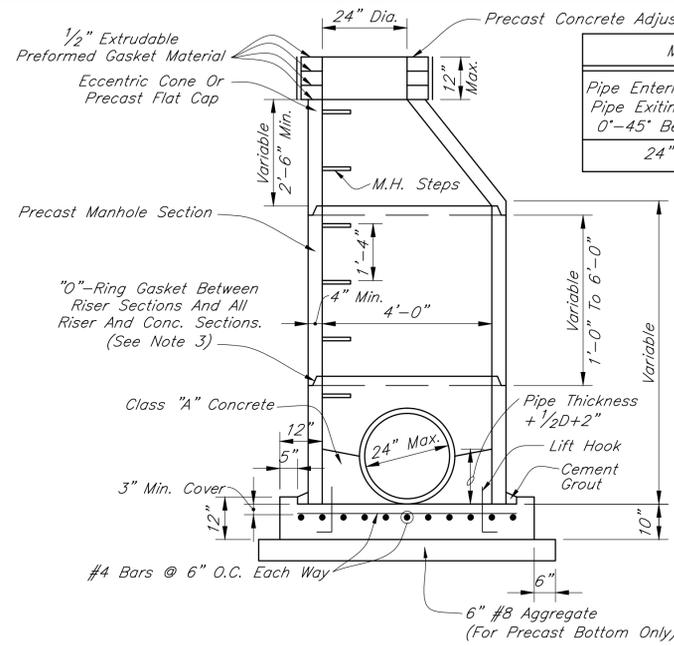
4" Min. (Below The Barrel)



Pipe Size	12" TO 15"	18" And Over
Bedding Below The Pipe Barrel	O.D./4 Min.=4"	O.D./4 Max.=8"

FLEXIBLE (PVC OR HDPE) PIPE BEDDING DETAIL

Scale: None



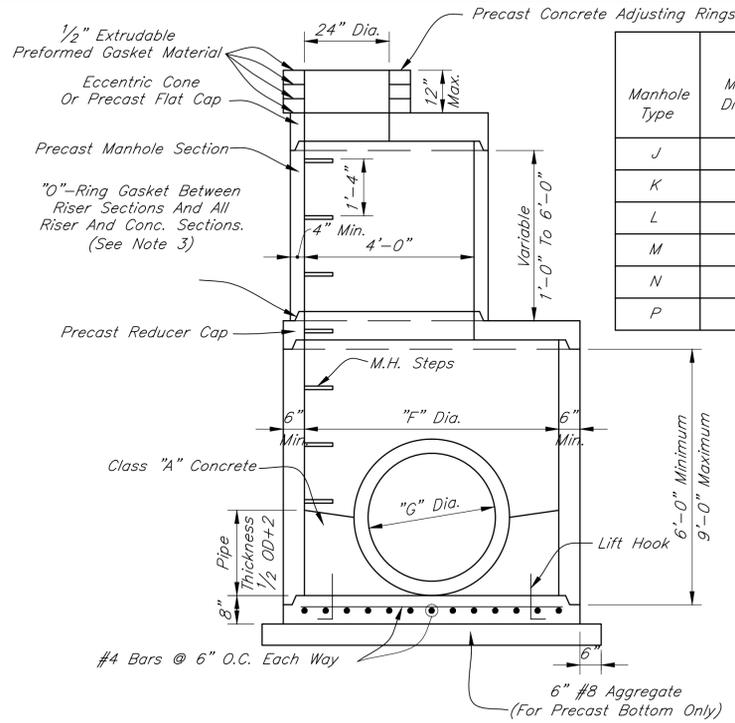
MAXIMUM PIPE SIZE	
Pipe Entering / Pipe Exiting At 0°-45° Bend	Pipe Entering / Pipe Exiting At 45°-90° Bend
24"	21"

MANHOLE TYPE C

Scale: 1/2"=1'-0"

GENERAL NOTES

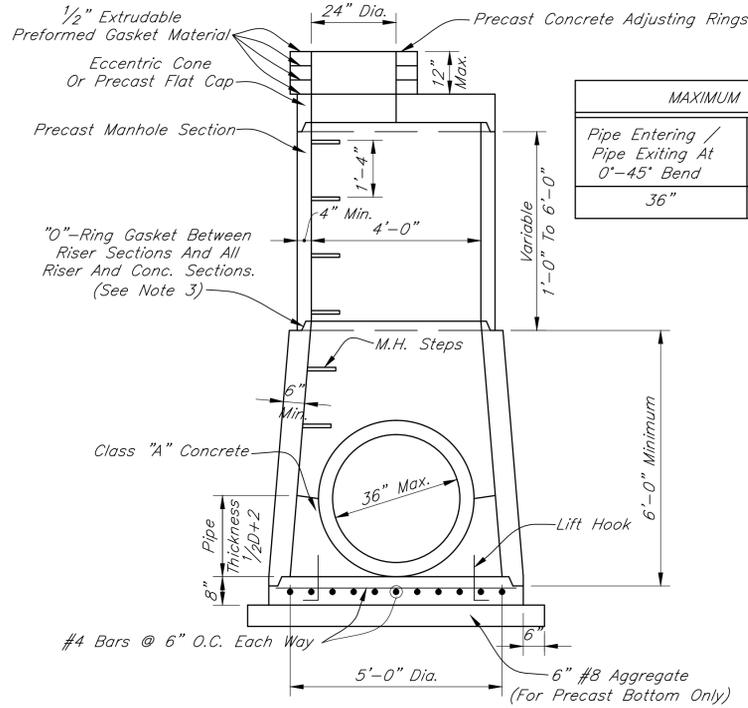
- Swales Shall Be Constructed With A Minimum 0.3 Percent Profile Grade Provided That A 6 Inch Diameter Underdrain Is Provided For Residential Swales And Commercial/Industrial Swales With Less Than A 0.5 Percent Profile Grade. See Detail On This Sheet.
- Type J, K, L, M, N, And P Manholes As Detailed Hereon Require A Certain Minimum Depth. In Cases Where The Depth Of The Storm Sewer Is Not Sufficient To Meet The Minimum Depth As Required By The Detail, "F" Diameter Manhole Section May Be Used Throughout The Depth Of The Manhole.
- Manholes Shall Conform To ASTM C478. Joints Shall Conform To ASTM C443. The Use Of Cast-In-Place Concrete Structures Shall Require The Prior Written Approval Of The City Engineer. Regardless Of The Type Of Casting Used, The Casting Shall Be Centered Over The Manhole Steps.
- Manhole Steps Shall Be Neenah R-1981-J, East Jordan No. 8512, M.A. Industries PS 1-PF, Or As Approved By Hobart DPW.
- For Drainage Of Roll Curb And Gutter, Type I, Provide As Per Development Standard Detail DS-D01 Or As Approved By Hobart DPW.
- For Drainage Of Combined Curb And Gutter, Type II, Provide As Per Development Standard Detail DS-D02, Or As Approved By Hobart DPW. For Additional Capacity As Directed By The Engineer, Provide As Per Development Standard Detail DS-D03 Or As Approved By Hobart DPW. Manholes Shall NOT Directly Drain Type II Curb.
- For Drainage Of Open Pavement Areas Without Curbing At An Inlet, Provide As Per Development Standard Detail DS-D04 Or As Approved By Hobart DPW.
- For Drainage Of Open Pavement Areas Without Curbing At A Manhole, Provide As Per Development Standard Detail DS-D05 Or As Approved By Hobart DPW.
- Castings For Use On Inlets Or Manholes Which Drain Swales Or Dry Bottom Detention Basins Shall Be As Per Development Standard Detail DS-D06 Or As Approved By Hobart DPW.
- Castings For Manholes Which Do Not Drain Surface Water Shall As Per Development Standard Detail DS-D07 Or As Approved By Hobart DPW.
- Mainline Pipe Shall NOT Connect To Catch Basins. Catch Basin Connections Shall Occur At A Manhole. Mainline Pipe Is Any Pipe Downstream Of A Single Set Of Two Catch Basins Or Any Pipe Larger Than Or Equal To 15 Inch Diameter. Pipe Less Than Or Equal To 15 Inch Diameter Which Drains One Swale Inlet May Be Connected To Catch Basins When The Invert Depth Of Such Catch Basin Is Not Greater Than Shown On The Catch Basin Detail. A 10"-15" Offset Is Required For Inlet Pipes Parallel To Mainline Pipe. It Is Noted That On Commercial Sites No Pipe Is Considered Mainline Pipe Until It Enters The Public R-O-W. Further, On Commercial Sites Precast Concrete Structures, As Detailed By Outside Sources, May Be Used Subject To The Providing Of A Suitable Transition So That Castings Prescribed For Use Within Hobart Are Used, And Subject To Storm Sewer General Note 4 On Sheet 07.
- Catch Basins Require Back Plaster Inside And Out. Castings May Be Adjusted As Much As 1 1/2" Using Cretex Penngrout Or As Approved By Hobart DPW. Special Adjustment Up To 6" Using Precast Adjusting Ring With 1/2" Butyl Rubber Gasket May Be Used If Approved By Hobart DPW.
- All Storm Drainage Castings Shall Be Per Sheet No. 09 Of The City Standards.
- All Inlets And Catch Basins Shall Have A Minimum Of 3" Allowed For Riser Rings Or Adjustment; Manholes Shall Have A Minimum Of 4".



Manhole Type	Manhole Diameter "F"	MAXIMUM PIPE SIZE "G"	
		Pipe Entering / Pipe Exiting At 0°-45° Bend	Pipe Entering / Pipe Exiting At 45°-90° Bend
J	60"	36"	33"
K	72"	48"	36"
L	96"	54"	48"
M	102"	72"	66"
N	108"	84"	72"
P	84"	54"	42"

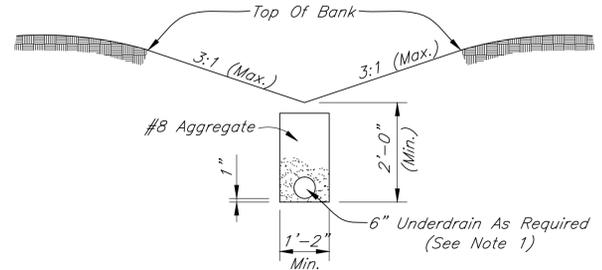
MANHOLES-TYPE J, K, L, M, N, & P

Scale: 1/2"=1'-0"



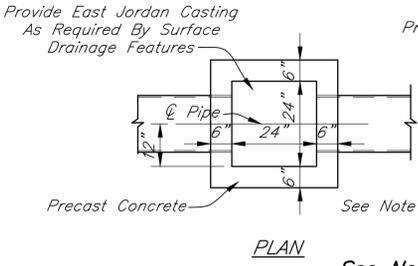
MANHOLE TYPE H

Scale: 1/2"=1'-0"

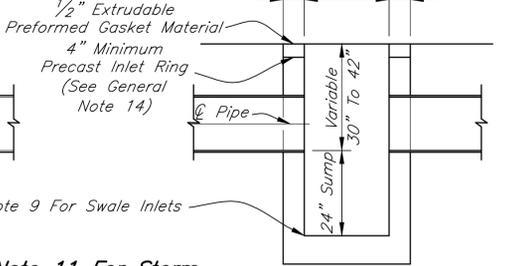


SWALE UNDERDRAIN DETAIL

Scale: 1/2"=1'-0"



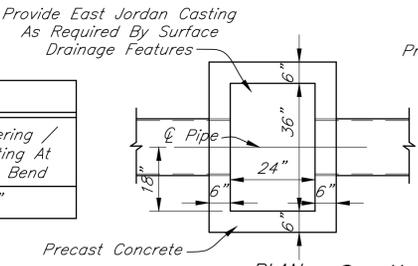
PLAN



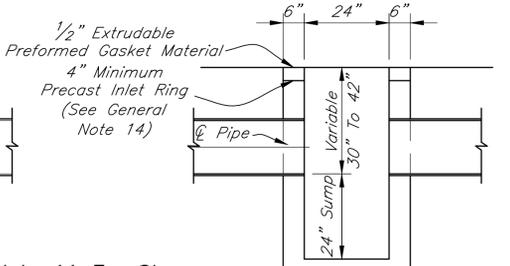
SECTION

See Note 11 For Storm System Layout Requirements
CATCH BASIN, TYPE A

Scale: 1/2"=1'-0"



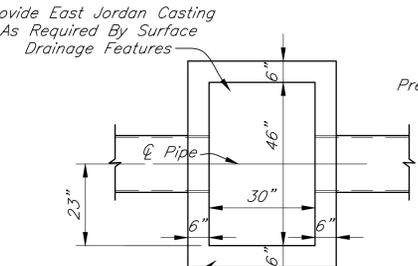
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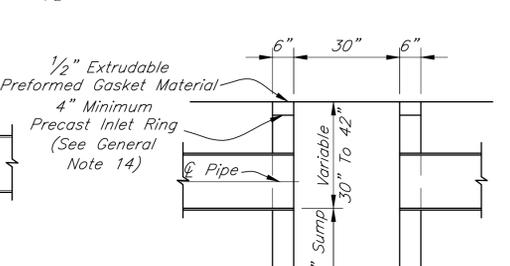
SECTION

See Note 11 For Storm System Layout Requirements
CATCH BASIN, TYPE B

Scale: 1/2"=1'-0"



PLAN



SECTION

See Note 11 For Storm System Layout Requirements
CATCH BASIN, TYPE C

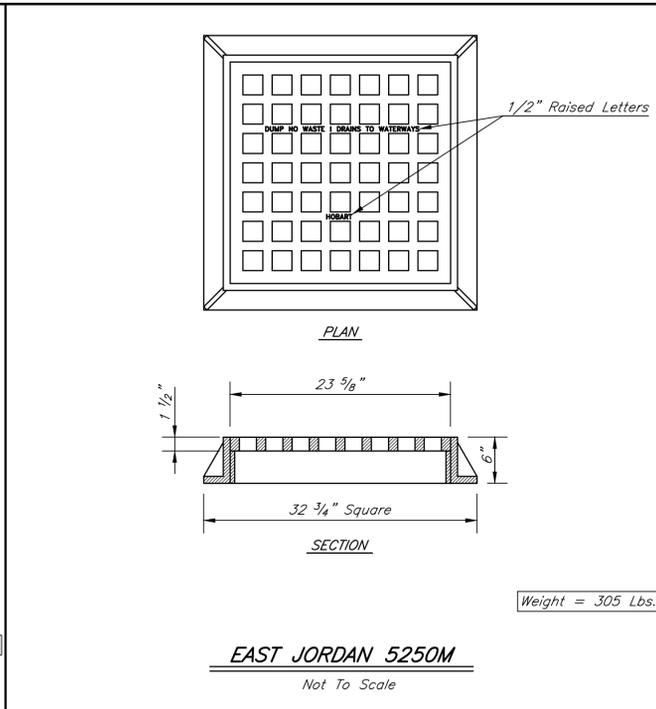
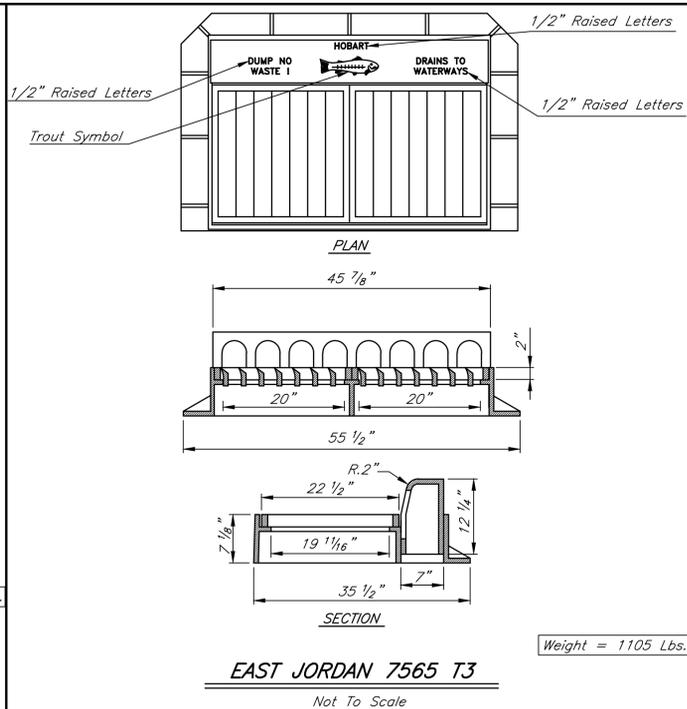
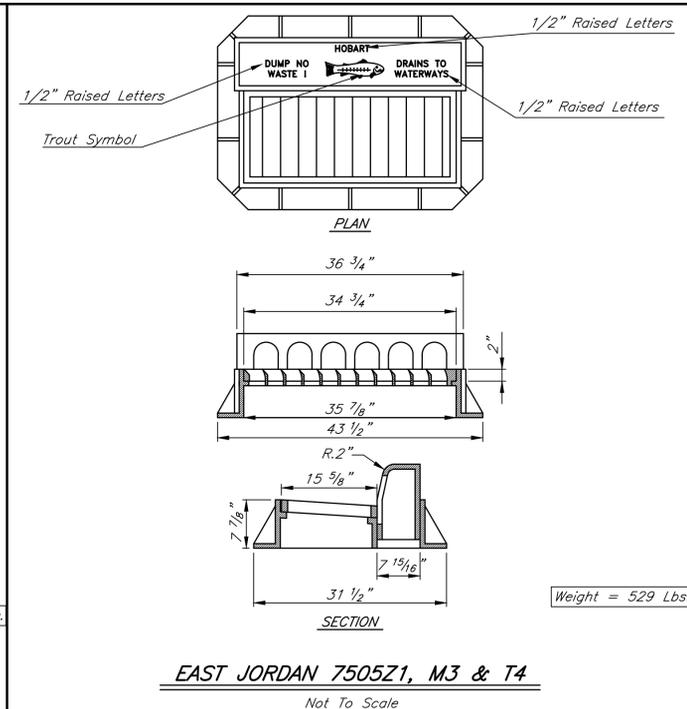
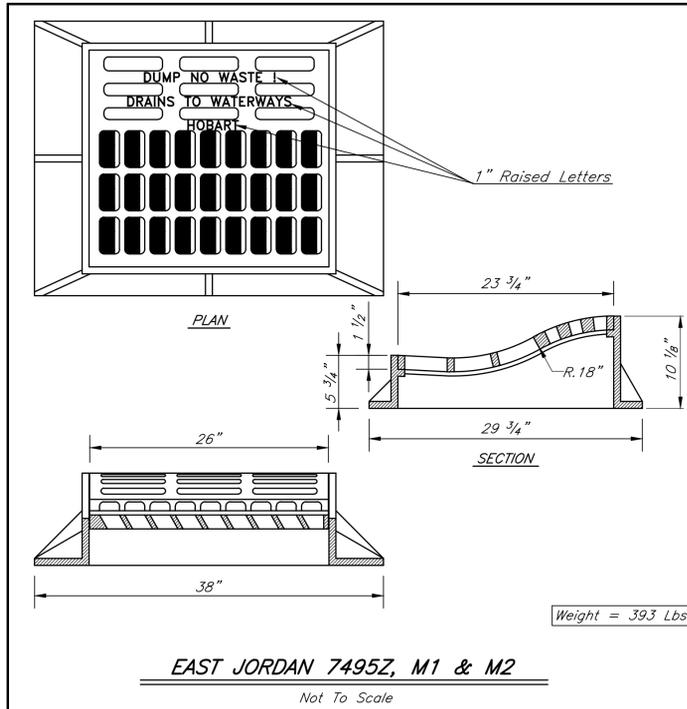
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REVISIONS		
Rev. No.	Description	Date
	Revised - 02/12/13	

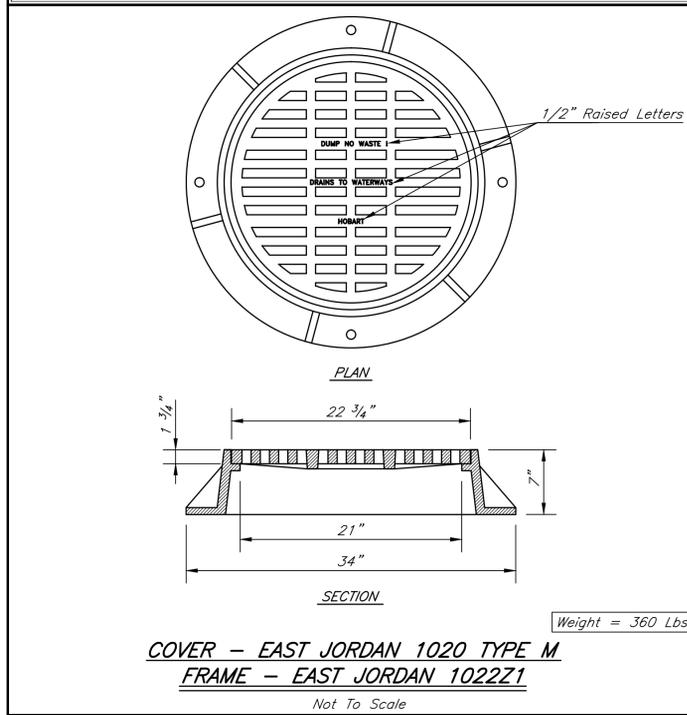


RECOMMENDED FOR APPROVAL: *[Signature]* 10/01/00
 DESIGN ENGINEER
 APPROVED: *[Signature]* 10/14/2010
 CITY ENGINEER
 APPROVED: *[Signature]* 11/23/010
 MAYOR AND PRESIDENT - BRIAN K. SNEDECOR
 BOARD OF PUBLIC WORKS AND SAFETY

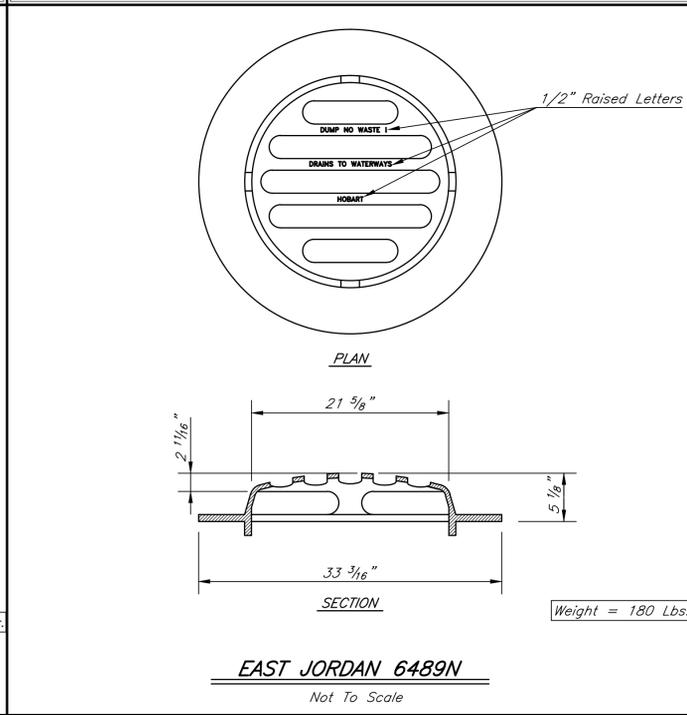
CITY OF HOBART
STORM SEWER DETAILS AND NOTES
 SHEET 08 OF 16



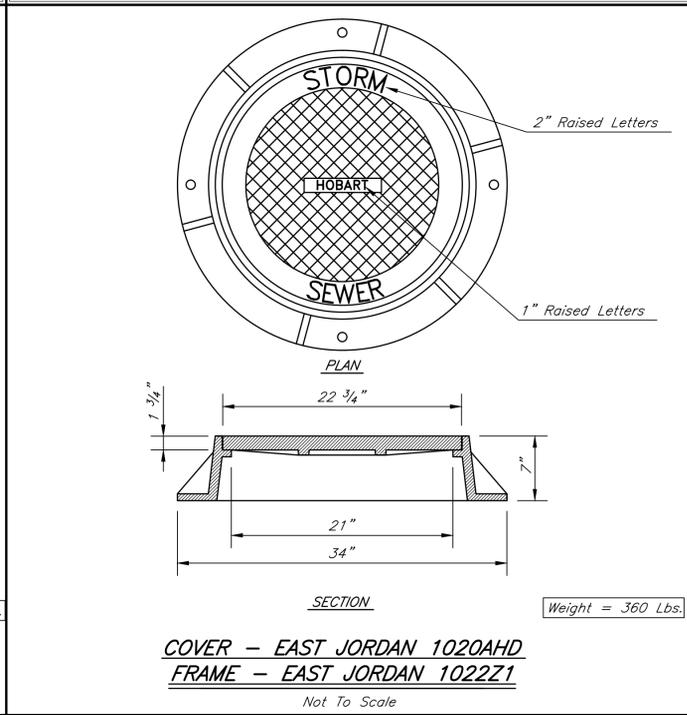
DEVELOPMENT STANDARD - DETAIL DS-D01



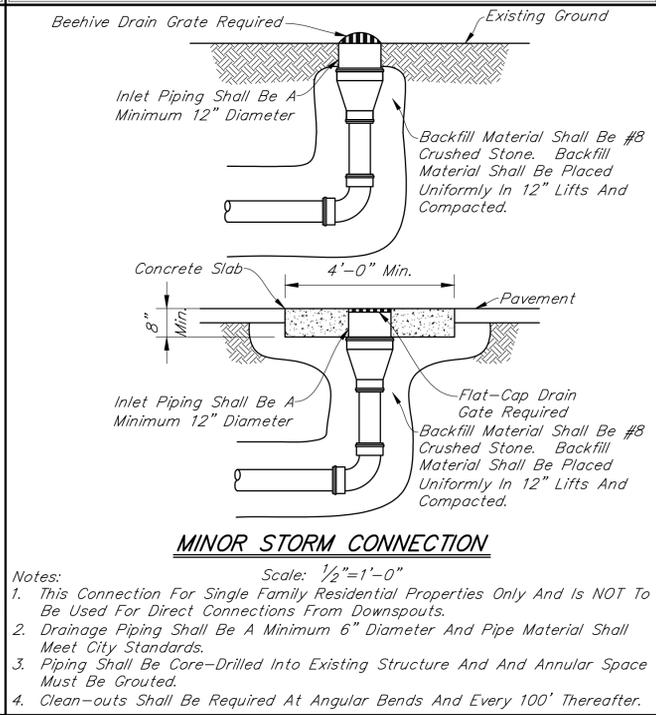
DEVELOPMENT STANDARD - DETAIL DS-D02



DEVELOPMENT STANDARD - DETAIL DS-D03



DEVELOPMENT STANDARD - DETAIL DS-D04



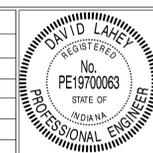
DEVELOPMENT STANDARD - DETAIL DS-D05

DEVELOPMENT STANDARD - DETAIL DS-D06

DEVELOPMENT STANDARD - DETAIL DS-D07

DEVELOPMENT STANDARD - DETAIL DS-D08

REVISIONS		
Rev. No.	Description	Date
	Revised - 02/12/13	



RECOMMENDED FOR APPROVAL: *D. D. H. H.* 10/01/2000
 DESIGN ENGINEER
 APPROVED: *P. P. K. H.* 10/14/2010
 CITY ENGINEER
 APPROVED: *B. K. S.* 11/2/2010
 MAYOR AND PRESIDENT - BRIAN K. SNEDECOR
 BOARD OF PUBLIC WORKS AND SAFETY

CITY OF HOBART
STORM DRAINAGE (D)
DEVELOPMENT STANDARDS

SHEET
 09
 OF
 16

SANITARY SEWER POLYVINYL CHLORIDE (PVC) PIPE

- 1.) PVC Pipe Diameters Of 4 Inches Through 15 Inches Shall Meet Or Exceed All Requirements Of ASTM D3034, And Shall Have A Minimum Cell Classification Of 12454. Reference Should Be Made To ASTM D1784 For A Summarization Of Cell Class Properties. PVC Pipe Diameters Greater Than 15 Inches Shall Meet Or Exceed All Requirements Of ASTM F679, And Shall Have A Minimum Cell Classification Of 12454.
- 2.) The Minimum Wall Thickness Of PVC Pipe 8 Inches Through 15 Inches In Diameter Shall Conform To SDR-35, Type PSM, As Specified In ASTM D3034 (See Note 5 For Fittings). The Minimum Wall Thickness For PVC Pipe Greater Than 15 Inches Shall Conform To PS 46 As Specified In ASTM F679. PVC Pipe Shall Have A Minimum Pipe Stiffness Of 46 Pounds Per Square Inch For Each Diameter When Measured At Five Percent Deflection And Tested In Accordance With ASTM D2412.
- 3.) PVC Open Profile Or Closed Profile Sewer Pipe Shall Meet Or Exceed All Requirements Of ASTM F794 Or ASTM F949, And Shall Have A Minimum Cell Classification Of 12454 And A Minimum Uniform Pipe Stiffness Of 50 Pounds Per Square Inch For Each Diameter When Measured At Five Percent Deflection And Tested In Accordance With ASTM D2412 (See Note 5 For Fittings).
- 4.) Pipe Joints Shall Have A Bell Wall, Gasket Groove, And Spigot Which Is Integral With The Pipe. The Assembly Of Joints Shall Be In Accordance With Pipe Manufacturer's Recommendations And ASTM D3212. Solvent Cement Joints Shall Not Be Allowed For Mainline Pipe.
- 5.) Pipe Fittings Shall Be SDR-26 Manufactured Fittings Made Of PVC Plastic Having A Cell Classification Of 12454 As Defined In ASTM D1784. Saddle Connections Shall Not Be Allowed For New Construction. Lateral Connections Shall Occur At SDR-26 Tee-Wyes.
- 6.) Each Pipe Section Shall Be Marked With The Name Of Manufacturer, Trademark Or Tradename, Nominal Pipe Size, Production/Extrusion Code, Material And Cell Classification, And ASTM Number.
- 7.) Installation Shall Be In Accordance With Recommended Practice ASTM D2321.

SANITARY SEWER LATERAL PIPE AND FITTINGS

- 1.) See Development Standards DS-S01, DS-S02, For Sanitary Sewer Lateral Requirements.

SANITARY SEWER GENERAL NOTES

- 1.) Sanitary Sewer Pipe Of Other Material Or Material Not Meeting These Specifications Shall Require The Prior Written Approval Of Hobart DPW.
- 2.) The Contractor Shall Submit Information To The City Engineer Showing Conformance With These Specifications Upon Request.
- 3.) As-Built Drawings Shall Be Submitted To Hobart DPW And City Engineer.

SANITARY SEWER LEAKAGE TESTING

- 1.) The City Of Hobart Shall Be Given 24 Hour Written Notice Of The Required Leakage Testing Procedure To Be Performed By The Contractor. Low Pressure Air Shall Be Slowly Introduced Into The Sealed Line Until The Internal Air Pressure Reaches 4 PSIG Plus The Groundwater Head Divided By 2.31 (Maximum Test Pressure Is 9 PSIG).
- 2.) At A Stable Internal Air Pressure Within 0.5 PSIG Of The Initial Internal Air Pressure, Timing Shall Commence With A Stopwatch Or Similar Device Of 99.8 Percent Accuracy. Timing Shall End When The Internal Air Pressure Drops 1 PSIG Below The Stable Internal Air Pressure.
- 3.) The Line Shall Be Accepted If The Time Shown In Table 1 For The Designated Pipe Size And Length Elapses Before The Air Pressure Drops 1 PSIG Below The Stable Internal Air Pressure At Which Time The Test Can Be Discontinued For The Accepted Line.

SANITARY SEWER DEFLECTION TESTING AND TELEVISIONING

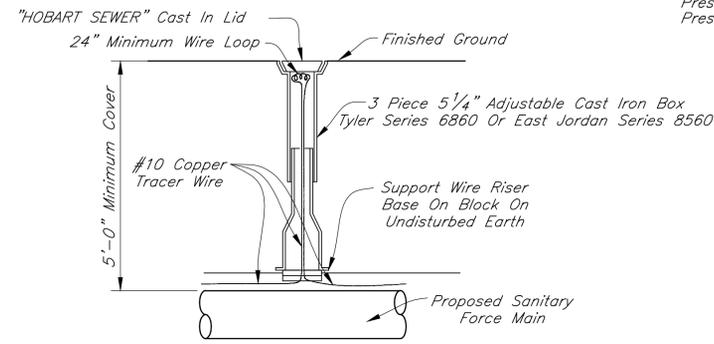
- 1.) Deflection Testing Is Required For All Mainline Flexible Pipe And Hobart DPW Shall Be Given 24 Hour Written Notice Of Deflection Testing. An Allowable Deflection Of 5 Percent Inside Pipe Diameter Will Be Acceptable After All Backfilling Has Been In Place For 30 Days. A Nine Point "Go-No-Go" Mandrel Shall Be Used For The Deflection Test. A Proving Ring Shall Be Provided For Each Mandrel. All Pipe Exceeding The Allowable Deflection Shall Be Televised To Determine The Extent Of Replacement Or Rerouting Required. The Reworked Section Shall Be Retested 30 Days After Completion. Contractor Shall Bear All Testing Costs. The "Go-No-Go" Mandrel Shall Be Manually Pulled Without The Use Of Mechanical Devices.
- 2.) Following Air And Mandrel Testing, Televisioning Is Required. Hobart DPW Shall Be Given 24 Hour Written Notice Of Televisioning. A Camera Equipped With Remote Control Devices To Adjust Light Intensity And 1,000 Linear Feet Of Sewer Cable Shall Be Provided. The Camera Shall Transmit A Continuous Image To The Television Monitor As It Is Being Pulled Through Pipe. The Image Shall Be Clear Enough To Enable The City Of Hobart Representative And Others Viewing The Monitor To Easily Evaluate The Interior Condition Of The Pipe. The Camera Shall Stamp The DVD With Manhole Number, Lateral Distance From Manhole, Linear Footage And Project Number, And An Audio Voice-Over Shall Be Made During The Inspection Identifying Problems. Contractor Shall Bear All Televisioning Costs.
- 3.) The Pipe Shall Be Thoroughly Cleaned Before Installing Camera And Commencing Televisioning.
- 4.) If Any Pipe And/Or Joint Is Found To Be Leaking, Regardless Of The Results Of Leakage Testing, In The Sole Judgement Of The City, The Contractor Shall Repair That Portion Of The Work To The Satisfaction And Approval Of The City Of Hobart.

TABLE 1

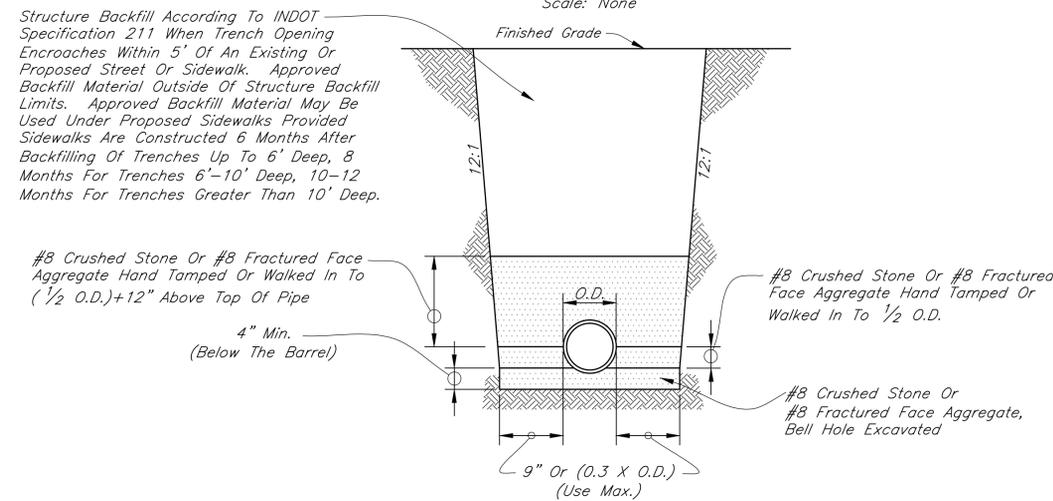
SPECIFICATION TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q=0.0015

1 Pipe Diameter (In.)	2 Minimum Time (Min:Sec)	3 Length For Minimum Time (Ft.)	4 Time For Longer Length (Sec.)	Specification Time For Length (L) Shown (Min.:Sec.)								
				100 Ft.	150 Ft.	200 Ft.	250 Ft.	300 Ft.	350 Ft.	400 Ft.	450 Ft.	
4	3:46	597	.380L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	5:42	6:24
8	7:34	298	1.520L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24	
10	9:26	239	2.374L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48	
12	11:20	199	3.418L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38	
15	14:10	159	5.342L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04	
18	17:00	133	7.692L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41	
21	19:50	114	10.470L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31	
24	22:40	99	13.674L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33	
27	25:30	88	17.306L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48	
30	28:20	80	21.366L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15	
33	31:10	72	25.852L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53	
36	34:00	66	30.768L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46	

NOTE:
For More Efficient Testing Of Long Test Sections And/Or Sections Of Larger Diameter Pipes, A Timed Pressure Drop Of 0.5 PSIG May Be Used In Lieu Of The 1.0 PSIG Timed Pressure Drop. If A 0.5 PSIG Pressure Drop Is Used, The Required Test Time Shall Be Exactly Half As Long As Those Shown Above.



TRACER WIRE RISER DETAIL



Pipe Size	8" To 15"	18" And Over
Bedding Below The Pipe Barrel	O.D./4 Min.=4"	O.D./4 Max.=8"

See Development Standards For Lateral Pipe Bedding

PVC PIPE BEDDING DETAIL

Scale: None

REVISIONS		
Rev. No.	Description	Date



RECOMMENDED FOR APPROVAL: *David Laney* 10/01/2010
DESIGN ENGINEER
APPROVED: *P.T. P.K.L.H.* 10/14/2010
CITY ENGINEER
APPROVED: *Brian K. Smedecor* 11/2/2010
MAYOR AND PRESIDENT - BRIAN K. SMEDECOR
BOARD OF PUBLIC WORKS AND SAFETY

CITY OF HOBART
**SANITARY SEWER
BEDDING DETAILS AND NOTES**

MANHOLES

- 1.) Precast Concrete Manholes Shall Conform To ASTM C478, With Rubber Type Gaskets Equal To ASTM C443. Monolithic Cast In Place Manholes Shall Only Be Used With The Prior Written Approval Of The City. The Base And First Riser Section Of The Precast Concrete Manhole Shall Be Integrally Cast As One Unit. Precast Concrete Cones Shall Be Of The Eccentric Cone Type. No "See Through" Lift Holes Shall Be Allowed On Precast Concrete Manholes 48 Inches In Diameter Or Less. In Addition To The Rubber Type Gaskets, All Joints Shall Receive A 1/2 Inch Diameter Non-Asphaltic Mastic (Kent-Seal Or As Approved By Hobart DPW) Conforming To AASHTO M-198 And Federal Specifications SS-5-210A. Sewer Connection To Manhole Shall Be KOR-N-SEAL, A-LOK, Dura-Seal, Or As Approved By Hobart DPW.
- 2.) Where One Solid Riser Or Barrel Section Cannot Be Used, Final Adjustment In Elevation Of The Frame And Cover Shall Be Accomplished By The Use Of A 4 Inch Minimum Thickness Adjusting Ring As Detailed Herein To A Maximum Combined Thickness Of 12 Inches. Brick Or Block Shall NOT Be Used In The Construction Of A Manhole Or To Adjust The Elevation Of The Frame And Cover.
- 3.) Manhole Steps Shall Be Neenah No. R-1981-J, East Jordan Iron Works No. 8512, M.A. Industries No. PS 1-PF, Or As Approved By Hobart DPW.
- 4.) Manhole Frame And Cover Shall Be As Per Development Standards Detail DS-S06 Or City Approved Equal.
- 5.) The Lowest Elevation To Receive Gravity Sanitary Service Must Be One Foot Above The Top Of Manhole Casting Elevation Of Either The First Upstream Or Downstream Manhole On The Public Sewer To Which Connection Is To Be Made. Those Portions Of The Building Not Meeting The Stated Gravity Sanitary Service Requirement Shall Be Provided With A Grinder Pump System Or City Approved Equal Discharging To The Gravity Building Connection Outside Of The Public Right-Of-Way.
- 6.) Infiltration Barrier Shall Be 60 Mils Minimum EPDM Sealed With A 2 Inch Mastic Strip To Cone (Manhole) And To Top Of Casting Lip And Shall Be Infi-Shield Or City Approved Equal.
- 7.) Hobart DPW May Approve Alternate Drop Connection If There Are Special Circumstances.
- 8.) Lateral Connection To A Manhole Is Prohibited.
- 9.) All Sanitary Manholes Shall Be Vacuum Tested With Castings Per ASTM C1244 Following Full Installation. All Sanitary Manhole Sections Shall Be Vacuum Tested In The Shop Prior To Shipment. Dewatering Shall Continue In Order To Prevent Hydrostatic Pressures From Affecting The Test.

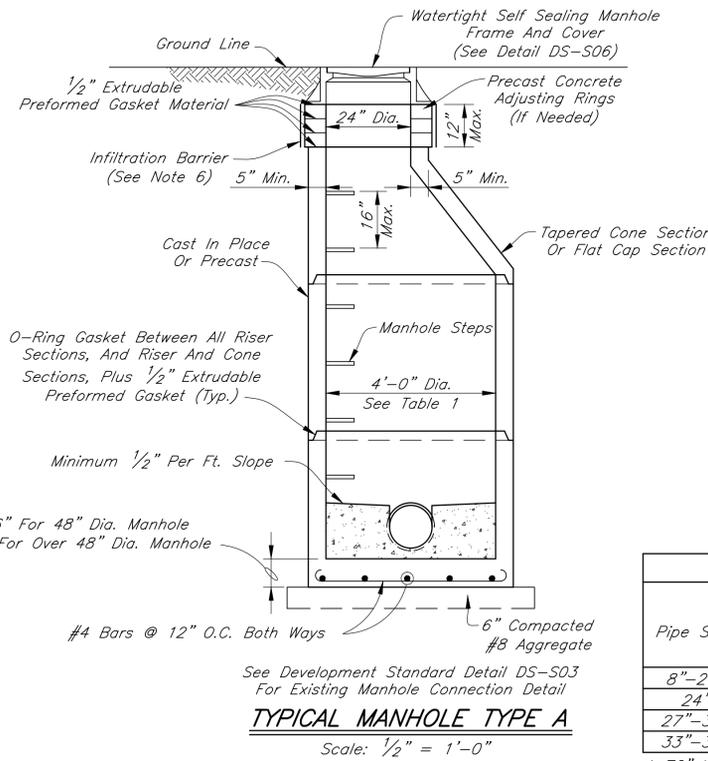
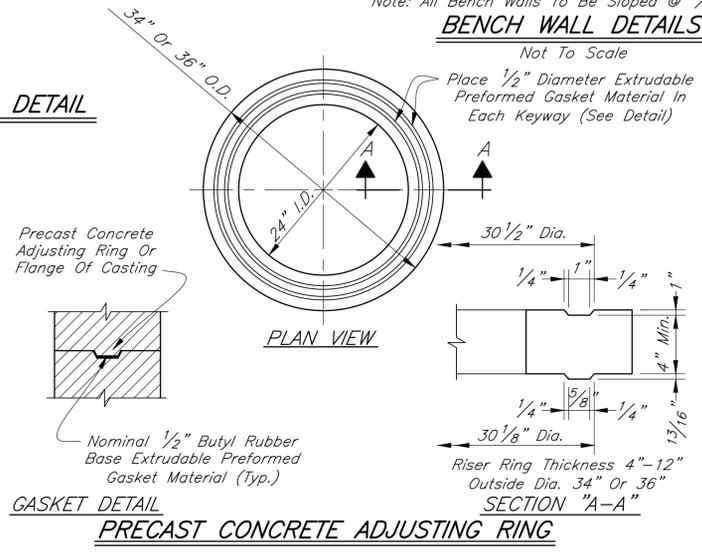
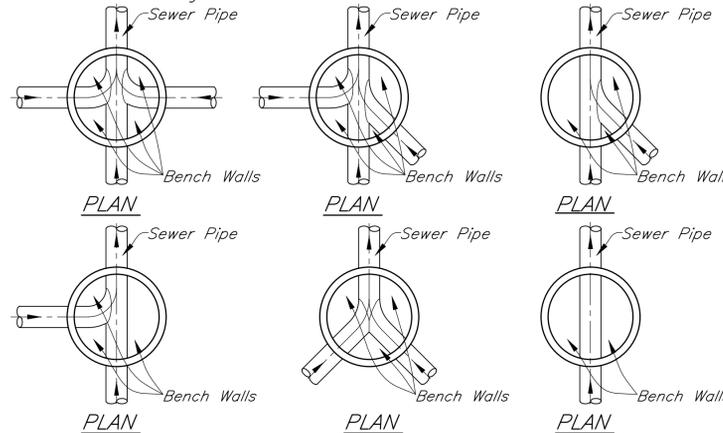


TABLE 1

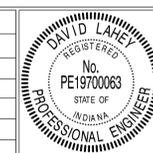
Pipe Size	Minimum Manhole Diameter	
	Pipe Entering/ Pipe Exiting At 0° To 45° Bend	Pipe Entering/ Pipe Exiting At 45° To 90° Bend
8"-21"	48"	48"
24"	48"	60"
27"-30"	60"	60"
33"-36"	60"*	72"

* 72" With A-Lock Connector

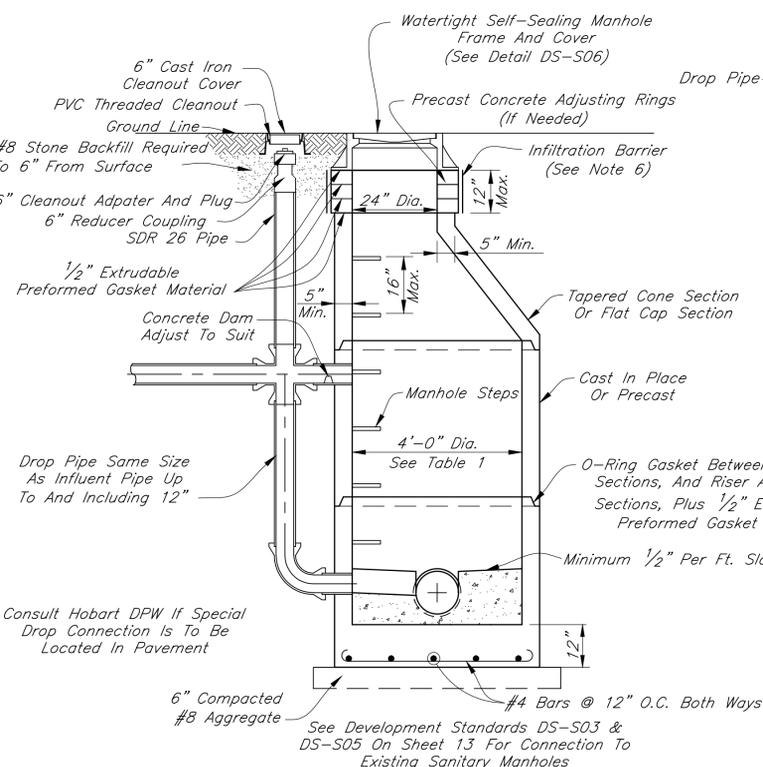
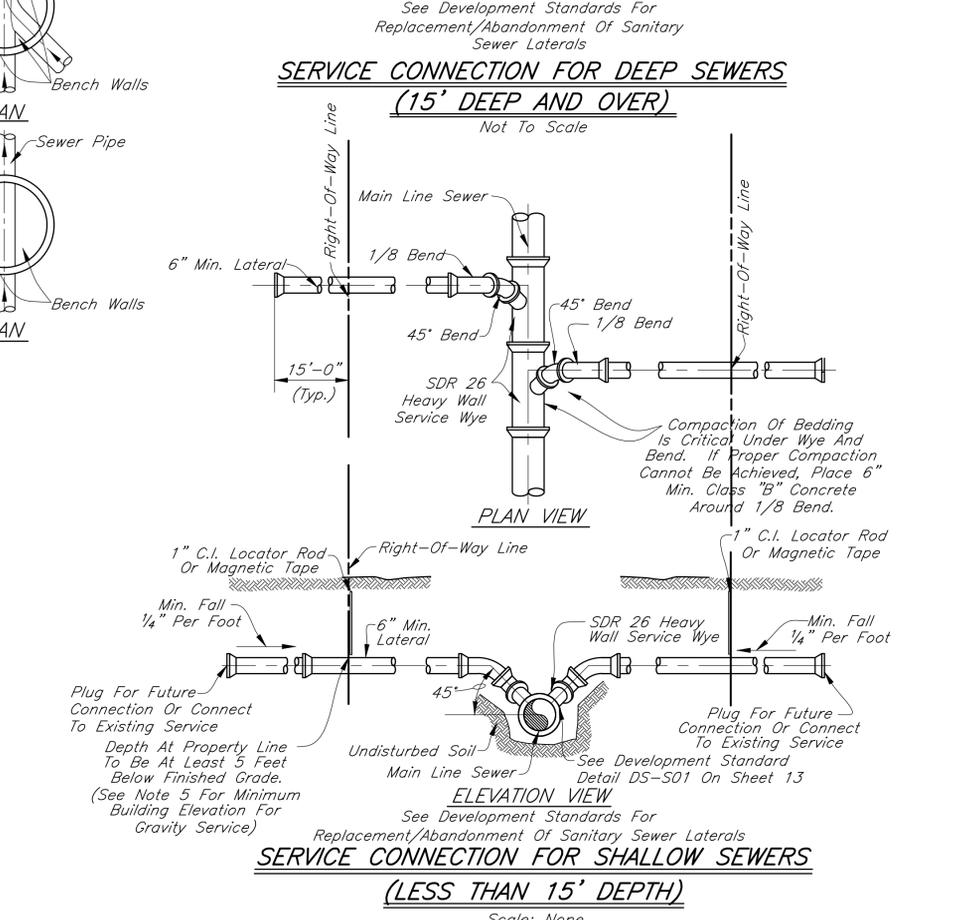
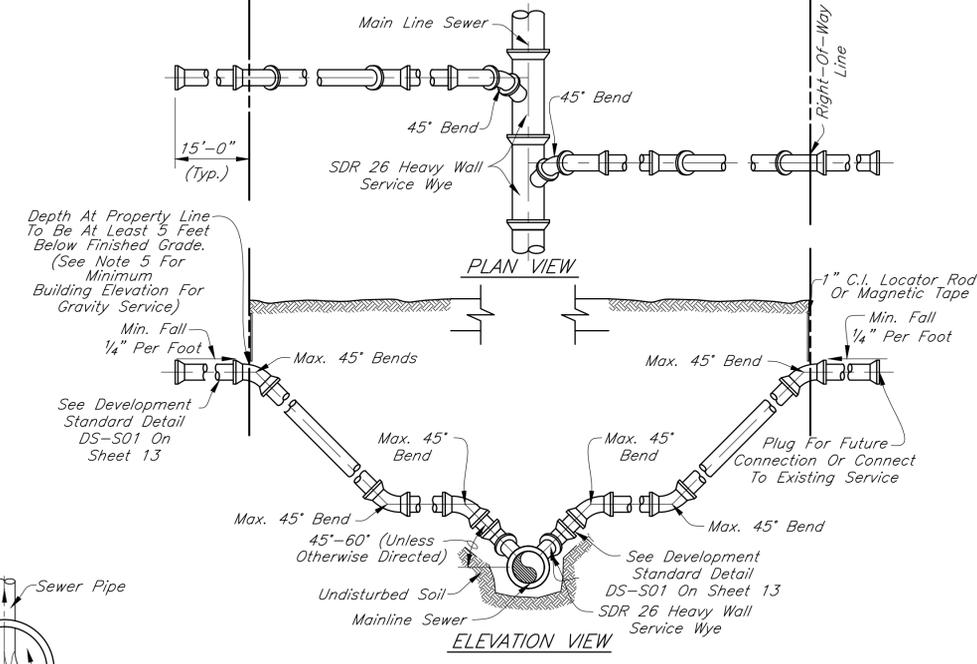


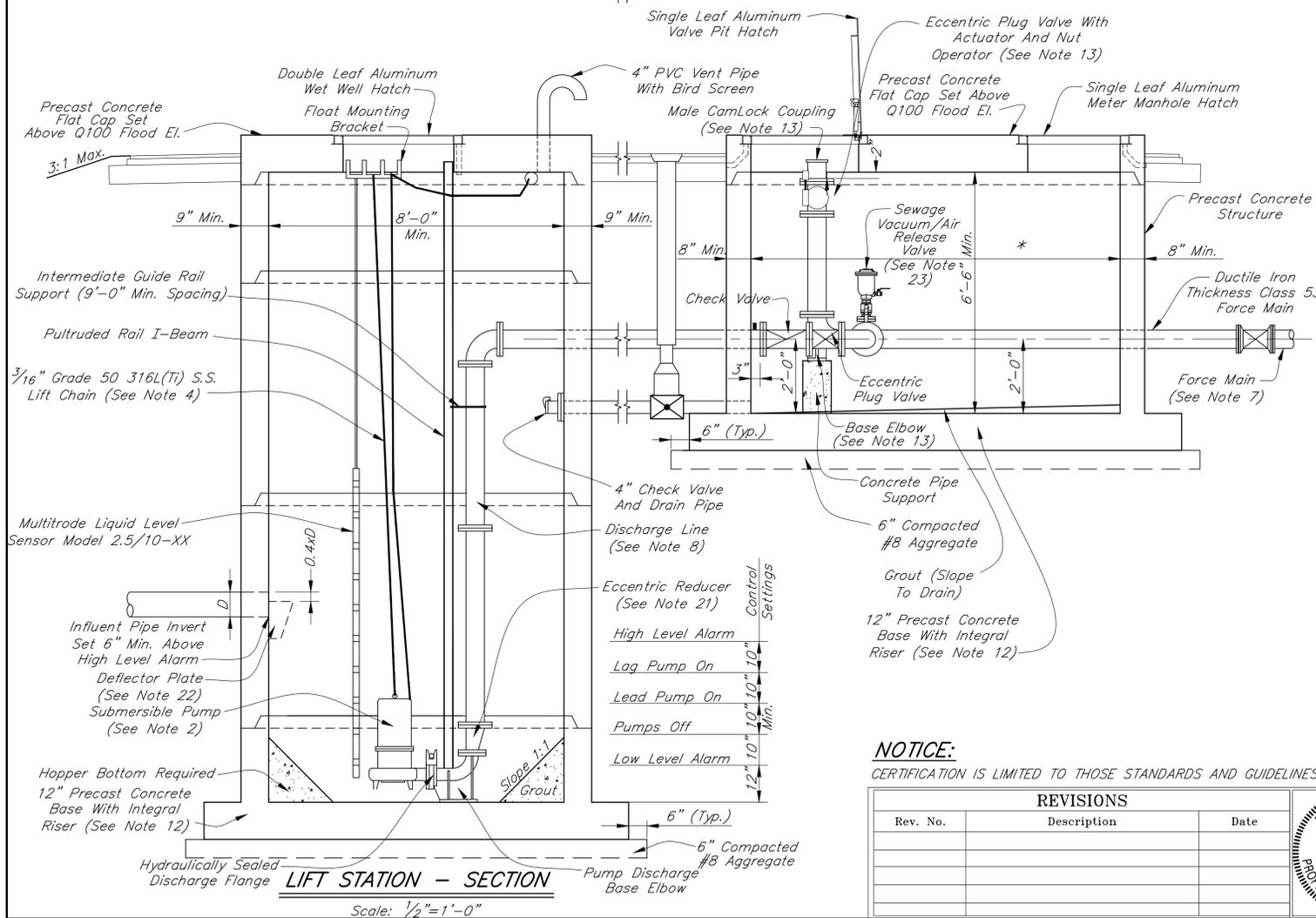
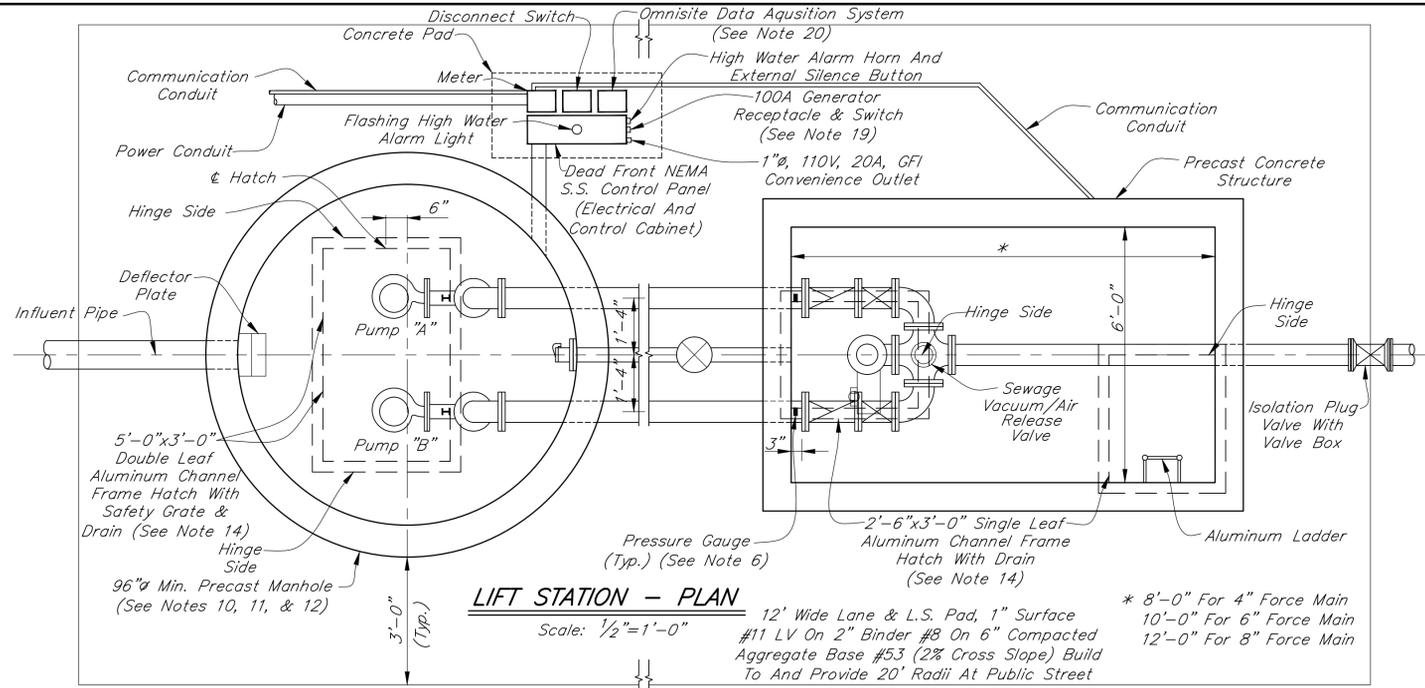
REVISIONS

Rev. No.	Description	Date
1	Revised -	02/12/13



RECOMMENDED FOR APPROVAL: *David Laney*, 10/01/2010
 DESIGN ENGINEER
 APPROVED: *P.T. PK.L.H.*, 10/14/2010
 CITY ENGINEER
 APPROVED: *Brian K. Smedecor*, 11/23/2010
 MAYOR AND PRESIDENT - BRIAN K. SMEDECOR
 BOARD OF PUBLIC WORKS AND SAFETY





GENERAL NOTES:

- Actual Lift Station Dimensions, Control Settings, and Pump Selection To Be As Indicated By The Design Engineer's Certification Sheet.
- Pumps "A" and "B" Shall Be Identical, Centrifugal, Submersible, Solids Handling, Non-Clog Design Capable Of Handling 3 Inch Sphere Solids, Fibrous Material, Sludge, And Material Found In Typical Raw Sewage. Fit Replaceable Bronze Wear Ring To Volute. Pumps Shall Be Hydromatic, Flygt, Or Hobart DPW Approved Equal. Manufacturer Shall Warrant The Pumps For One Year After Installation.
 All Mating Surfaces Intended To Be Watertight Shall Be Machined And Fitted With Nitrile Rubber O-Rings With Sealing Complete When Metal To Metal Contact Is Made, Resulting In Controlled Compression Of O-Rings Without Specific Torque Limit. Fasteners Shall Be 316 S.S.
 Mechanical Shaft Seal System Running In An Oil Reservoir Shall Have Separate, Constantly Lubricated Lapped Seal Faces. The Lower Seal Unit Between Media And Oil Reservoir Shall Consist Of One Stationary Seat And One Rotating Ring Held In Place By Its Own Spring. The Rotating Seat Ring And The Stationary Seat Ring Shall Be Made Of Tungsten-Carbide. The Lower Seal Shall Be Removable Without Disassembling The Seal Chamber. The Upper Seal Between Seal Chamber And Motor Shall Be Of The Same Design With Its Own Spring. Seals Shall Be Maintenance Free, But Shall Be Easily Inspectable.
 Lower Seal Failure Alarm Shall Be Engaged By Seal Failure Sensor Provided In The Seal Chamber Which Senses Water Intrusion Through Lower Seal.
 Over Temperature Alarm, And Pump Shut Down, Shall Be Engaged By Heat Sensor Attached To The Motor Windings. Motor Winding And Stator Lead Insulation Shall Be Class F With Maximum Temperature Capability Of 155° C Or Better. Housing Shall Be Filled With High Dielectric Oil. Air Filled Housing May Be Acceptable When Approved By Hobart DPW. Pump And Motor Shall Be Designed To Operate Partially Or Fully Submerged In Pumped Media Without The Use Of Cooling Jackets.
 Rail System Shall Enable The Easy Removal Of The Pump Without The Need For A Person To Enter The Wet Well. A Non-Corrosive FRP I-Beam Shall Be Provided For Each Pump. The Guide Rail Shall Be Supported At The Bottom By The Discharge Elbow, Aligned Perfectly Plumb And Securely Affixed To Access Frame. One Intermediate Guide Rail Support Is Required For Each 9' Of Guide Rail Length. Schedule 40 S.S. Guide Rails May Be Acceptable If Pump Is Approved By Hobart DPW.
- Check Valve Shall Be Bronze Seated And Shall Be Provided With Bolted Covers For Easy Access To The Discs. Valve Shall Be Outside Adjustable Weight And Lever As Mueller A-2600-6-01, Clow F-5382, Or As Approved By Hobart DPW. The Valve Shall Be Furnished With Fusion Bonded Epoxy Coating Inside And Out In Accordance With AWWA C550.
- Provide Sufficient Lift Chain, Float Mounting Cable, And Pump Power And Sensor Cable To Enable Non-Spliced Field Adjustment. Lift Chain Shall Have A Minimum Work Load Limit Of 1100 Pounds. Float Mounting Cable Shall Be Held In Place By Weight, Floats Shall Be Fastened To Cable With S.S. Clamps Near Each Float Location. Pump Power And Sensor Cable Shall Be Suitable For Submersible Pump Applications And This Shall Be So Indicated By A Code/Legend Permanently Embossed On The Cable.
- Plug Valve Shall Be An Eccentric Buna-N Rubber Faced Plug With Hand Lever Operation On Bypass Valve Bypass Valve Shall Be Valmatic E-5800-R, Clow F-5412, Or As Approved By Hobart DPW. The Valve Shall Be Furnished With Fusion Bonded Epoxy Coating Inside And Out In Accordance With AWWA C550.
- Pressure Gauge Shall Be Terrec Model 450 LFB Or Hobart DPW Approved Equal. Drill And Tap Run Of Pipe To Install Pressure Gauge.
- Piping Not Within 2 Feet Of Wet Well And Valve Pit Shall Be DI AWWA C151, HDPE AWWA C906, PVC ASTM D2241, PVC AWWA C900, Or Hobart DPW Approved Equal. See Design Engineer's Certification Sheet For Pipe Class.
- Piping In And Within 2 Feet Of Wet Well And Valve Pit Shall Be Class 53 Flanged Ductile Iron Pipe And Shall Be Manufactured By Griffith, U.S. Pipe, Or As Approved By Hobart DPW. All Fasteners Within Wet Well And Valve Vault Shall Be 316 S.S.
- Piping And Fittings In Wet Well And Valve Pit Shall Be Factory Primed Tnemec Series Purple Prime To A Dry Film Thickness Of 5.0 To 11.0 Mils And Shall Be Field Finished With Tnemec Series 89-Color To A Dry Film Thickness Of 5.0 To 6.0 Mils. Fittings Shall Be Manufactured By Clow, Tyler, Mueller, Or As Approved By Hobart DPW.
- Damp Proof All Exterior Vertical Surfaces Which Are Backfilled Against With Bituminous Coating, Hydrocide 700 Mastic.
- Lift Station Manhole And Valve Pit Structures Shall Be Precast Concrete In Accordance With ASTM C478, With Rubber Gaskets Equal To Gasket Material Or Hobart DPW Approved Equal. See Sanitary Sewer Details And Notes Sheet For Manhole Steps.
- Horizontal Projections From Precast Integral Base And Riser May Be Required To Enable The Weight Of The Vertical Soil Ring Above The Projection To Resist Buoyancy Forces. See Design Engineer's Certification Sheet.
- CamLock Coupling And Eccentric Plug Valve On Bypass Line Shall Be 6 Inch Diameter With Transition To Force Main Size Occurring With Concentric Reducer Placed On Top Of Base Elbow. Fix Operating Nut For Eccentric Plug In Vertical Position To Enable Wrench Operation From Surface. Layout Of All Valve Vault Fittings And Equipment To Be Based Upon Bypass Line Being Close To Hatch Opening, As Shown.
- Aluminum Hatches Shall Be Channel Frame Type Flygt Safe-Hatch. Leaf Shall Be 1/4 Inch Aluminum Diamond Plate Live Load Rated To 300 PSF. Channel Frame Shall Be 1/4 Inch Extruded Aluminum With A Mill Finish And Bituminous Coating On Exterior Surfaces. Hatch Shall Be Provided With Type 316 S.S. Hardware Throughout, Automatic Hold-Open Arm With Release Handle, Slam Lock With Removable Handle, 1-1/2 Inch Drain Coupling, And Padlock Hasp.
- Sewer Connection To Wet Well Shall Be KOR-N-SEAL, A-LOK, Dura-Seal, Or Hobart DPW Approved Equal.
- Force Main Penetrations Of Wet Well And Valve Pit Shall Be Made Watertight Through The Use Of Portland Cement Grout.
- Automatic Pump Control Panel Shall Include All Necessary Items And Appurtenances Which Might Normally Be Considered A Part Of A Complete System, Including But Not Limited To: Condensate Heater; Push To Test Button (External); Push To Silence Button (External); Alternator Selector Switch For Manual Designation Of Lead Pump; Time Delay Relay For Lag Pump Start; And Pump Run Time Hour Meters. System Shall Be Supplied By One Manufacturer, Shall Be Factory Assembled, Wired, Tested, And Shall Be Per Complete Electrical Drawings And Instructions. Major Components And Sub-Assemblies Shall Be Identified By Their Function With Laminated, Engraved, Bakelite Nameplates. System Shall Be Built In A Minimum 60"x36"x12" NEMA 4X S.S. Enclosure Suited For The Specified Horsepower And Voltage Of The Pumps. The Outer Door Of The Panel Shall Be A Hinged Dead Front With Provisions For Padlocking. Inside Shall Be A Separate Hinged Panel To Protect All Electrical Components, H-O-A Switches, Run Lights, Circuit Breakers, Etc., Mounted Such That Only The Faces Protrude Through Said Panel With No Wiring Fixed To Said Panel. The Manufacturer Shall Warrant The Control Center For One Year After Installation Covering 100% Parts And Labor.
 Provide The Services Of A Factory Trained, Qualified Representative To Inspect, Adjust, Place The System In Trouble Free Operation, And Instruct Operating Personnel In The Proper Operation And Care Of The System.
 All Major Components Of Control Center Shall Be American-Made And Available From Local Sources. Pump Manufacturer Shall Accept The Control Center In Writing To Ensure Unit Responsibility And Warranty.
 Provide A Manual Transfer Type Disconnect Switch Housed In A Separate NEMA 4X S.S. Enclosure With External Operation Handle Capable Of Being Locked In The "ON" Normal Position Or The "OFF" Secondary Position With A Middle "OFF" Position.
 A Lightning Arrestor Shall Be Provided At The Phase Relay Block And Connected To Each Line Of The Incoming Side Of The Power Input Terminals. A Single Main Fusible/Breaker Disconnect Switch Of Adequate Size To Provide Protection For Control Operation, And Appurtenant Components Shall Be Provided. Provide A Circuit Breaker And Magnetic Starter With Each Lag Manual Reset Overload Protected For Each Pump. Starters Shall Have Auxiliary Contacts On 3Ø Applications To Operate Both Pumps Simultaneously. Provide A Phase Monitor With Phase Fail Relay. Provide A Circuit Breaker And Transformer To Power The Control Panel With 12, 115 Volt Service For All Control Functions Including OMNISITE Data Acquisition System, Radio And Flowmeter. Provide A Green "Run" Light, And H-O-A Switch To Enable Field Connections.
 Materials And Installation Of The Required Equipment Grounding Shall Be In Accordance With NEC Section 250-83(C). All Wiring Shall Have Not Less Than 600 Volt Insulation. Wiring And Buss Shall Be In Accordance With NEC, State, Local, And NEMA Standards. All Wiring Shall Be Color Coded, Minimum 4 Inch Diameter, Schedule 40 Conduit Shall Be Provided From Wet Well To Control Panel Enabling Pump Power And Sensor Cables, And Float Switch Cables To Be Easily Pulled. Seal Conduit At Control Panel To Prevent Sewer Gases From Entering. All Conduits, Fittings, Or Connections Shall Enter From The Bottom Of Enclosures.
 Sump Level Rise To Lead Pump Run Float Causes Lead Pump To Operate. Lead Pump Operating And Sump Level Falling To Pumps Off Float Causes Lead Pump To Shut Off. Lead Pump Operating And Sump Level Rising To Lag Pump Run Float Causes Lag Pump To Operate. Lag Pump Operating And Sump Level Falling To Lag Pump Off Float Causes Both Pumps To Shut Off. Sump Level Rise To High Level Alarm Causes High Level Alarm To Operate. Sump Level Fall To Low Level Alarm Causes Low Level Alarm To Operate. An Alternating Relay Shall Be Provided To Cause Pumps To Alternate Whenever Pumps Off Float Is De-Energized. If One Pump Falls For Any Reason, The Remaining Pump Shall Operate Upon Sump Level Rise To Lag Pump Run Float. An Hour Meter Shall Be Provided For Each Pump To Record The Elapsed Operating Time Of Each Pump.
- Four Manuals Shall Be Presented To The Owner Which Shall Include The Following Minimum Information: 1) Operation Instructions; 2) Maintenance Instructions; 3) Recommended Spare Parts List; 4) Lubrication Schedule; 5) Structural Diagrams; 6) As-Built Wiring Diagrams; And 7) Bill Of Materials.
- Generator Receptacle To Be Crouse-Hinds BHR Dead Front Interlocked Receptacle With Factory Sealed Switch For Receipt Of The City Of Hobart's BHP Plugged Portable Generator Set.
- Provide OMNISITE XR 50 Data Acquisition System That Incorporates: 1 Spare Input/Output, 1 Input For Flowmeter 4-20mA Signal, 5 Outputs To Control Being Lead Remote On, Lead Remote Off, Lag Remote On, Lag Remote Off, Remote Alarm Acknowledge, 10 Inputs From Control Being Hatch(es) Open Alarm, Panel(s) Open Alarm, Pump "A" On, Pump "B" On, Pump "A" Fail, Pump "B" Fail, Phase Fail Alarm, Power Fail Alarm, High Water Alarm, And Pump(s) Seal Failure. Remote Lead Pump Override And Remote Lag Pump Override.
- Eccentric Reducer To Be Installed As Required For Force Main Size. Consult Hobart DPW If Force Main Piping Is Greater Than 6 Inch Diameter.
- 1/4" Stainless Steel Deflector Plate Required On All Influent Pipes. Contact Hobart DPW For Purchasing.
- Air/Vacuum Release Valve As Required By Design. Air/Vacuum Release Valve Shall Be Sized By The Design Engineer According To Volume Of Main And Maximum Force Main Operating Pressure. Air/Vacuum Release Valve Shall Be As Manufactured By Val-Matic Valve & Manufacturing Corp.

NOTICE:

CERTIFICATION IS LIMITED TO THOSE STANDARDS AND GUIDELINES PER THIS SHEET. CONSTRUCTION IS SUBJECT TO CONSTRUCTION DRAWINGS, SHOP DRAWINGS, AND DESIGN ENGINEER'S CERTIFICATION SHEET.

REVISIONS		
Rev. No.	Description	Date



RECOMMENDED FOR APPROVAL: *[Signature]* 10/10/2000
 DESIGN ENGINEER
 APPROVED: *[Signature]* 10/14/2010
 CITY ENGINEER
 APPROVED: *[Signature]* 11/2/2010
 MAYOR AND PRESIDENT - BRIAN K. SNEDECOR
 BOARD OF PUBLIC WORKS AND SAFETY

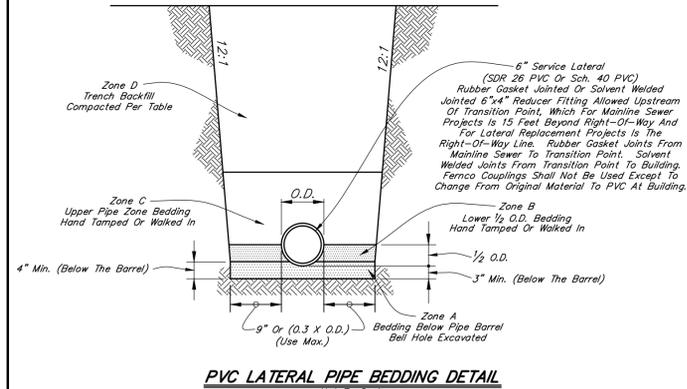
CITY OF HOBART
 SANITARY SEWER
 LIFT STATION STANDARDS
 & GUIDELINES

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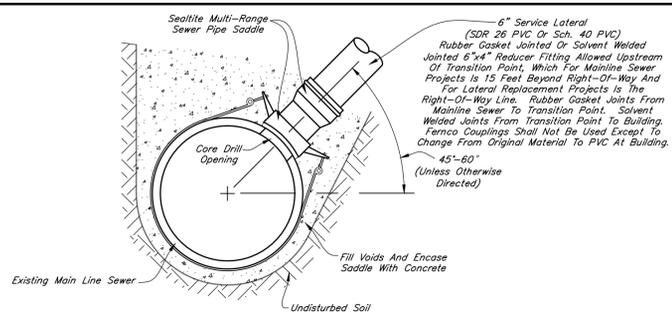
PVC LATERAL PIPE BEDDING & BACKFILL TABLE**					
Bedding/Backfill Zone As Detailed On Detail	Back Of Curb To Back Of Curb	Planting Strip Or Existing Sidewalk	Private Property For Repair/Replace	Future Sidewalk Under 6 Month Rule*	Private Property Under 6 Month Rule*
Zone D Trench Backfill Compacted Per Table	Flowable Fill Or Same As Zone 'B'	Flowable Fill Or Same As Zone 'B'	Approved Excavated Material @ 85% Standard Proctor	Approved Excavated Material @ 85% Standard Proctor	Approved Excavated Material @ 85% Standard Proctor
Zone C Upper Pipe Zone Bedding Hand Tamped Or Walked In	Flowable Fill Or Same As Zone 'B'	Flowable Fill Or Same As Zone 'B'	#2 Crushed Stone Or Well-Graded Sand	#2 Crushed Stone Or Well-Graded Sand	#2 Crushed Stone Or Well-Graded Sand
Zone B Lower 1/2 O.D. Bedding Hand Tamped Or Walked In	#8 Crushed Stone Or #8 Fractured Face Aggregate	#8 Crushed Stone Or #8 Fractured Face Aggregate	#2 Crushed Stone Or Well-Graded Sand	#2 Crushed Stone Or Well-Graded Sand	#2 Crushed Stone Or Well-Graded Sand
Zone A Bedding Below Pipe Barrel Bell Hole Excavated	#8 Crushed Stone Or #8 Fractured Face Aggregate	#8 Crushed Stone Or #8 Fractured Face Aggregate	#2 Crushed Stone Or Well-Graded Sand	#2 Crushed Stone Or Well-Graded Sand	#2 Crushed Stone Or Well-Graded Sand

*Approved Excavated Material May Be Used Under Proposed Sidewalks Provided Sidewalks Are Constructed 6 Months After Backfilling Of Trench And As Such Any Additional Lateral Pipe Built On Private Property Under Initial Sewer Construction Shall Be In Accordance With "Private Property Under 6 Month Rule" Column.

**The PVC Lateral Pipe Bedding And Backfill Table Is Intended To Show Minimum Material Requirements. Flowable Fill May Be Used For Any Zone C, Or Zone D Work. "B"-Borrow May Be Used Whenever Excavated Material Is Required By Table. #8 Crushed Stone Or #8 Fractured Face Aggregate May Be Used Whenever "B"-Borrow Is Required By Table.

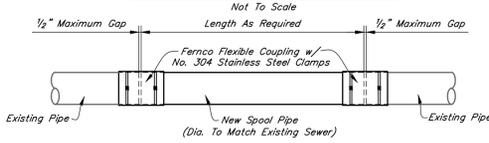


PVC LATERAL PIPE BEDDING DETAIL
Not To Scale



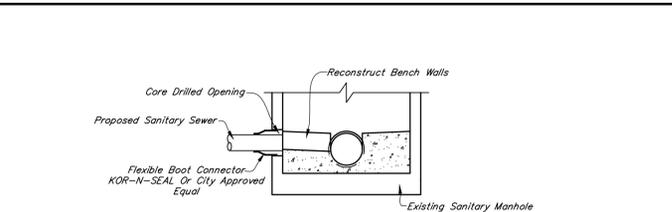
- 1.) Sewer Pipe Saddle Shall Be General Engineering Company Sealite Type "U" For Laterals Connecting To Existing Mainline Sanitary Sewer With A 6.275" OD To 30.00" OD.
- 2.) Sewer Pipe Saddle Shall Be General Engineering Company Sealite Type "C" For Laterals Connecting To Existing Mainline Sanitary Sewer Over 30.00" OD.

SANITARY LATERAL SADDLE
Not To Scale

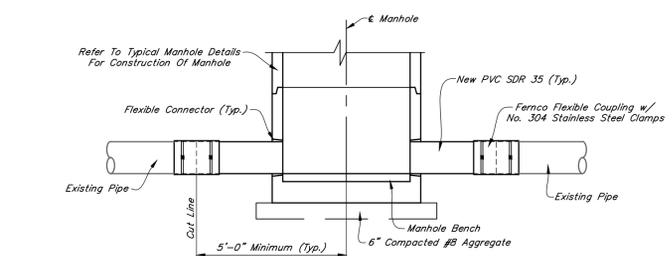


- 1.) Cut Existing Pipe(s) On Both Sides Of The Existing Lateral Service. Remove Existing Fittings And Pipe(s) Section And Install New Spool Pipe As Detailed Above.

EXISTING SANITARY LATERAL ABANDONMENT
Not To Scale

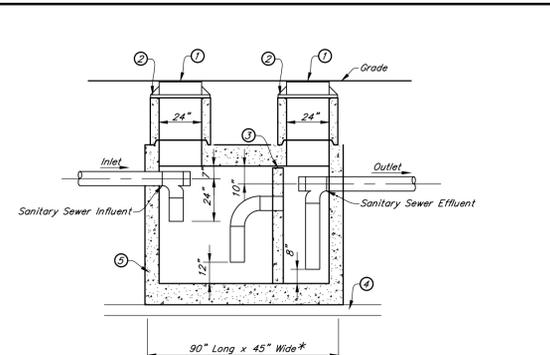


EXISTING MANHOLE CONNECTION DETAIL
Not To Scale



- 1.) Cut Existing Pipe(s) On The Side Of The Proposed Manhole. Remove Existing Pipe(s) Section And Install Manhole Base. Proceed With Typical Connections And Manhole Construction.

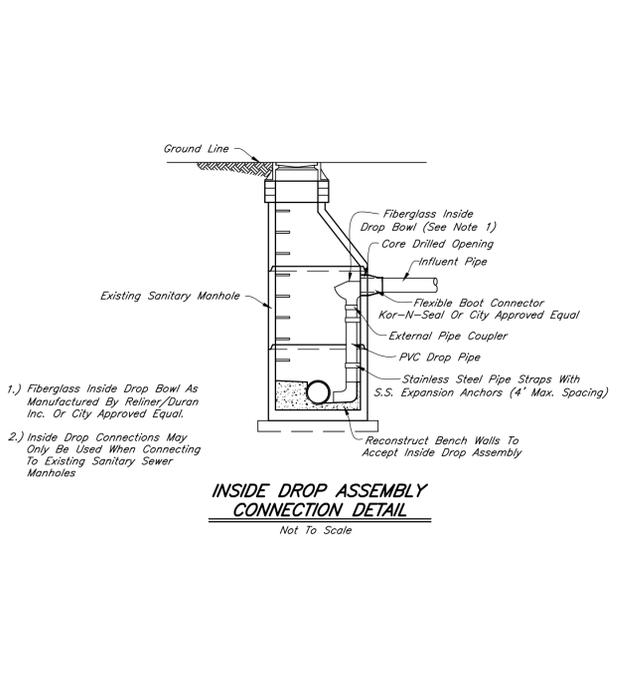
SPECIAL MANHOLE CONNECTION DETAIL
Not To Scale



GREASE INTERCEPTOR DETAIL
Not To Scale

- NOTES:**
- 1) Cast Iron Manhole Frame And Cover R-6462-FH Or Approved Equal
 - 2) 24" Diameter Concrete Pipe Riser
 - 3) Precast Concrete Baffle
 - 4) 6" Of #8 Compacted Aggregate
 - 5) Precast Concrete Structure Designed For Vehicle Traffic. (Must Be Approved By The Authority Having Jurisdiction)

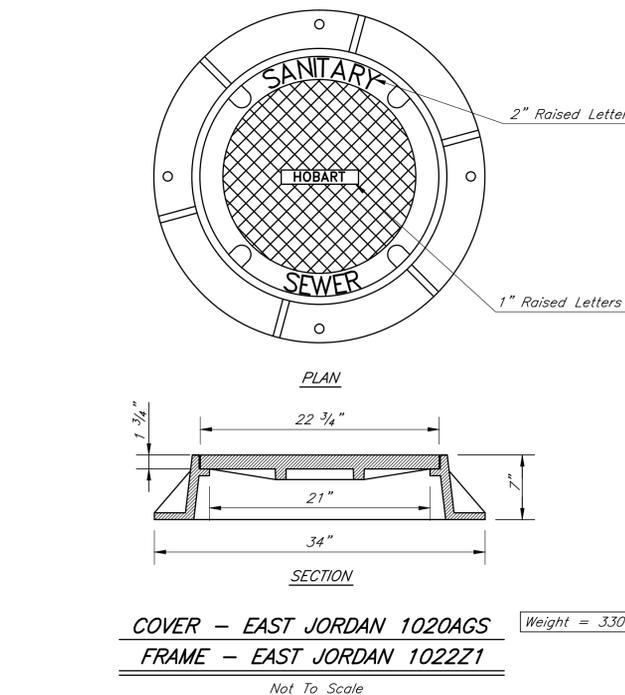
DEVELOPMENT STANDARD - DETAIL DS-S01



- 1.) Fiberglass Inside Drop Bowl As Manufactured By Reliner/Duran Inc. Or City Approved Equal.
- 2.) Inside Drop Connections May Only Be Used When Connecting To Existing Sanitary Sewer Manholes

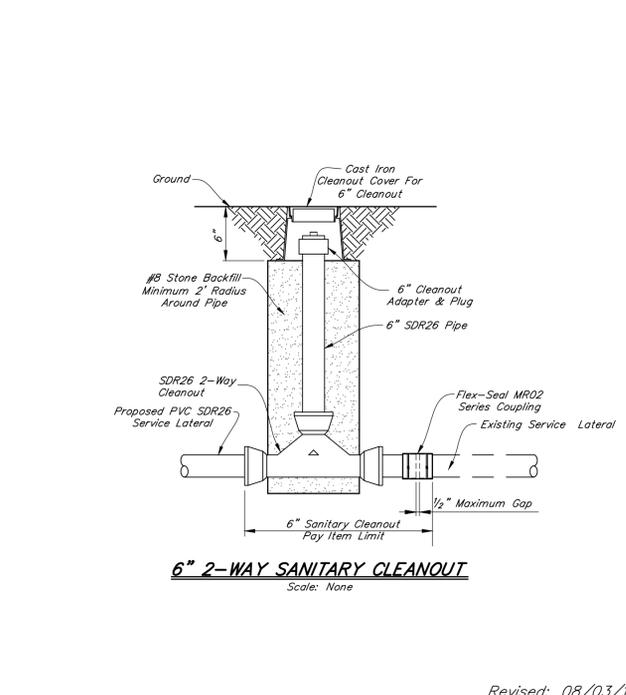
INSIDE DROP ASSEMBLY CONNECTION DETAIL
Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-S02



COVER - EAST JORDAN 1020AGS
FRAME - EAST JORDAN 1022Z1
Weight = 330 Lbs.
Not To Scale

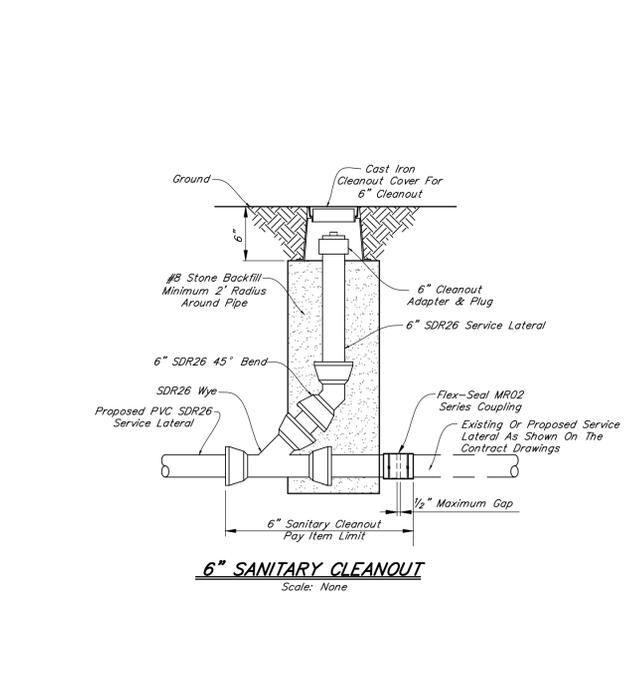
DEVELOPMENT STANDARD - DETAIL DS-S03



6" 2-WAY SANITARY CLEANOUT
Scale: None

Revised: 08/03/12

DEVELOPMENT STANDARD - DETAIL DS-S04



6" SANITARY CLEANOUT
Scale: None

DEVELOPMENT STANDARD - DETAIL DS-S05

DEVELOPMENT STANDARD - DETAIL DS-S06

DEVELOPMENT STANDARD - DETAIL DS-S07

DEVELOPMENT STANDARD - DETAIL DS-S08

REVISIONS		
Rev. No.	Description	Date
	Revised - 02/12/13	



RECOMMENDED FOR APPROVAL: *[Signature]* 10/01/2010
DESIGN ENGINEER
APPROVED: *[Signature]* 11/14/2010
CITY ENGINEER
APPROVED: *[Signature]* 11/23/2010
MAYOR AND PRESIDENT - BRIAN K. SWEDCOR
BOARD OF PUBLIC WORKS AND SAFETY

CITY OF HOBART
SANITARY SEWER (S)
DEVELOPMENT STANDARDS
SHEET 13 OF 16

Notes:

Installation:
Lay Out The Diversion By Setting Grade And Alignment To Fit Site Needs And Topography, Maintaining A Stable, Positive Channel Grade Towards The Outlet.

Remove And Properly Dispose Of Brush, Trees, And Other Debris From The Foundation Area.

Construct The Diversion To Dimensions And Grades Shown In The Construction Plans.

Construct The Diversion Ridge In Six To Eight-Inch Lifts. Compact Each Lift By Driving Wheels Of Construction Equipment Along The Ridge. Overfill And Compact The Ridge To Design Height Plus 10 Percent To Allow For Settlement.

Stabilize Outlets Prior To Or During Construction Of The Diversion, Diverting Sediment-Laden Storm Water Flow To A Temporary Sediment Trap Or A Temporary Dry Sediment Basin.

Maintenance:

Inspect Within 24 Hours Of Each Rain Event And At Least Once Every Seven Calendar Days.

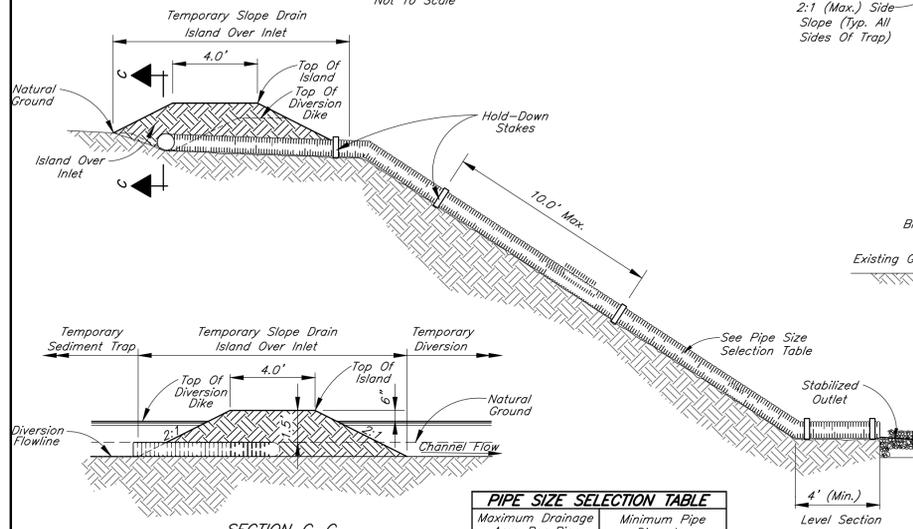
Remove Sediment From Channel To Maintain Positive Grade.

Check Outlets And Make Necessary Repairs Immediately.

Adjust Ridge Height To Prevent Overtopping.

TEMPORARY DIVERSION

Not To Scale



SECTION C-C

Maximum Drainage Area Per Pipe	Minimum Pipe Diameter
0.50 acre	8 in.
0.75 acre	10 in.
1.00 acre	12 in.
>1.00 acre	Individually Designed

Notes:

Installation:
Place Temporary Slope Drains On Undisturbed Soil Or Well Compacted Fill. Set The Slope Drain Inlet At The Bottom Of The Diversion Channels. Connect The Pipe To The Inlet Section.

Construct The Diversion Ridge By Placing Fill Over The Pipe In 6 Inch Lifts. Compact Each Lift By Hand Tamping Under And Around The Inlet, And Along The Pipe.

Make The Top Of The Fill 6 Inches Higher Than The Adjoining Diversion.

Make All Pipe Connections Watertight And Secure So That Joints Will Not Separate In Use.

Anchor The Pipe To The Face Of The Slope With Stakes Spaced No More Than 10 Feet Apart. Extend The Pipe Beyond The Toe Of Slope To A Stable Grade. Protect The Outlet From Erosion.

Grade The Diversion Channel At The Top Of The Slope Toward The Temporary Slope Drain (Slope <2%).

Stabilize All Disturbed Areas Following Installation.

Maintenance:

Inspect Weekly And Following Each Storm Event. (Remove Sediment From The Channel And Reinforce The Ridge As Needed.)

Check The Inlet For Sediment Or Trash Accumulation.

Check The Fill Over The Pipe For Settlement, Cracking, Or Piping Holes; Repair Immediately.

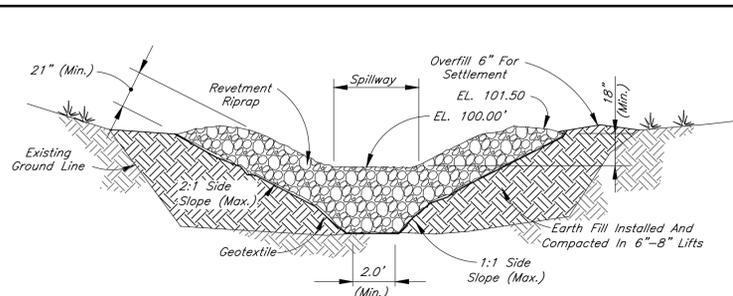
Check For Holes Where The Pipe Emerges From The Dike; Repair Immediately.

Check The Conduit For Evidence Of Leaks Or Inadequate Anchoring; Repair Immediately.

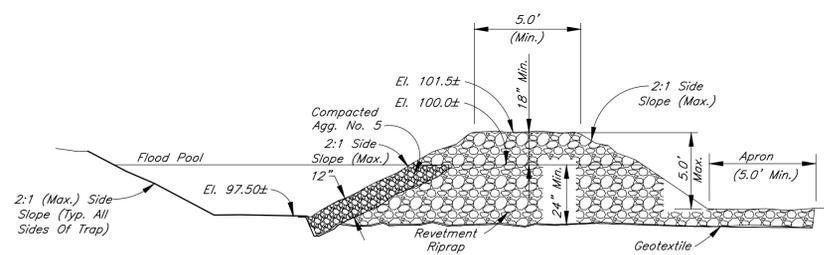
Check The Outlet For Erosion Or Sedimentation; Clean & Repair Or Extend If Necessary.

TEMPORARY SLOPE DRAIN

Not To Scale



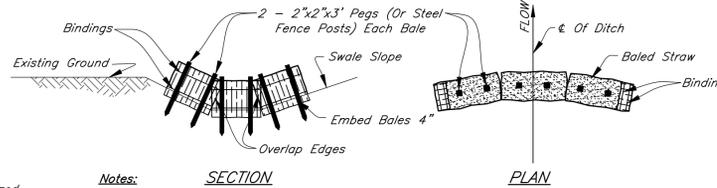
EARTH EMBANKMENT AND STONE OUTLET SECTION



CROSS SECTION VIEW OF THE STONE OUTLET SECTION

TEMPORARY SEDIMENT TRAP

Not To Scale



SECTION

PLAN

Notes:

Installation:
Lay Out The Location Of The Straw Bale Barrier So That It Is Parallel To The Contour Of The Slope And At Least 10 Feet Beyond The Toe Of The Slope To Provide A Sediment Storage Area.

Excavate A Trench At Least 4 Inches Deep, A Bale's Width, And Long Enough That The End Bales Are Somewhat Upslope Of The Sediment Pool (So No Flow Can Cut Around The Bales).

Place Each Bale In The Trench So The Bindings Are Oriented Around The Sides Rather Than Top And Bottom (To Minimize Binding Deterioration), And Abut The Bales Tightly Against Each Other.

Anchor The Dam By Driving Two 3/8 Inch Long Steel Rebars Or 2"x2" Hardwood Stakes Through Each Bale Unit Nearly Flush With The Top. Drive The First Stake Towards The Previously Laid Bale To Force The Bales Together.

Tightly Wedge Straw Into Any Gaps Between The Bales To Prevent Sediment Laden Water From Running Through.

Backfill And Compact The Excavated Soil Against The Bales To Ground Level On The Down-slope Side And To 4 Inches Above Ground Level On The Up-slope Side.

Maintenance:

Inspect Straw Bale Dams After Each Storm Event, And Remove Any Sediment Deposits Promptly To Ensure Adequate Storage Volume For The Next Rain. Take Care Not To Undermine The Entrenched Bales.

Inspect Daily For Deterioration Or Damage From Construction Activities, And Repair Immediately.

After The Contributing Drainage Area Has Been Stabilized, Remove All Straw Bales And Sediment, Bring The Disturbed Area To Grade, And Stabilize.

SLOPE STEEPNESS RESTRICTIONS		
Percent Slope	Maximum Distance Among Straw Bale Barrier	
<2%	<50:1	100 Ft.
2%-5%	50:1 to 20:1	75 Ft.
5%-10%	20:1 to 10:1	50 Ft.
10%-20%	10:1 to 5:1	25 Ft.
>20%	>5:1	15 Ft.

STRAW BALE DAM (STRAW BALE FILTER)

Not To Scale

Notes:

The Spillway Width Varies With The Drainage Area Contributing To The Temporary Sediment Trap:

Drainage Area (acres)	Width (ft.)
1	4
2	6
3	8
4	10
5	12

The Length And Width Of The Basin Are As Shown On The Erosion Control Plan (Maximum Drainage Area Is 5 Acres).

See The Indiana Storm Water Quality Manual For Additional Information.

Installation:

Clear, Grub, And Strip All Vegetation And Root Mat From The Embankment Area.

Create Embankment Using Material Free Of Roots, Rocks, Brush, And Debris. Overfill The Embankment 6 Inches To Allow For Settling.

Excavate A Trapezoidal Stone Outlet Section From The Compacted Embankment (Section A-A).

Install Geotextile And Place Specified Stone To The Lines And Grades Shown.

Stabilize The Embankment And Other Disturbed Areas With Seed And Mulch Or Another Suitable Erosion Resistant Cover.

Maintenance:

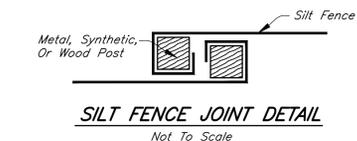
Inspect Traps Weekly And Following Each Storm Event And Immediately Repair. Check Embankment For Any Erosion And Piping Holes And Repair.

Remove Sediment When It Has Accumulated To One Half The Design Depth. Check Pool Area Side Slopes For Erosion And Repair.

Replace Spillway Gravel Facing If Clogged.

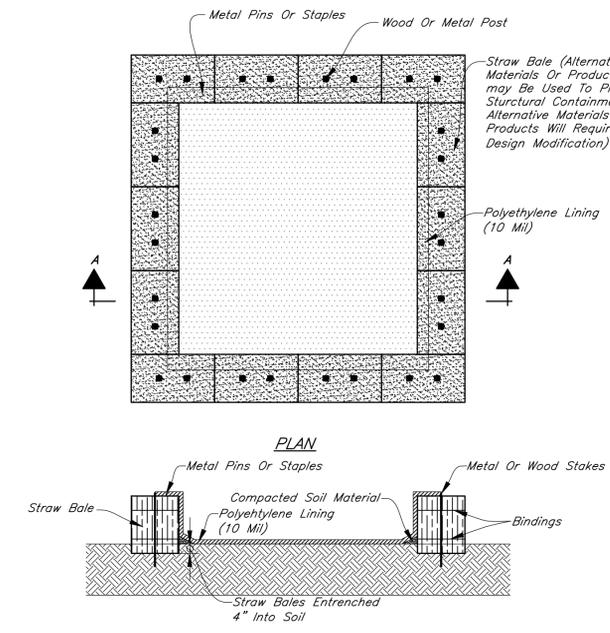
Inspect Vegetation And Seed Again, If Necessary.

Check The Spillway Depth Periodically To Ensure A Minimum 18 Inch Depth From The Lowest Point Of The Settled Embankment To Highest Point Of The Spillway Crest. Fill Any Low Areas To Maintain The Design Elevation.



SILT FENCE JOINT DETAIL

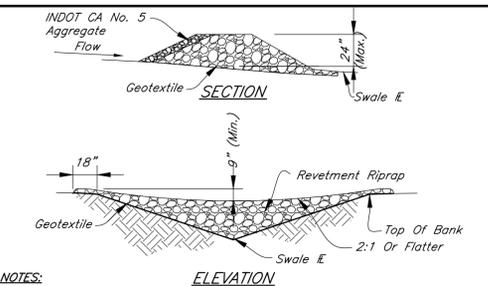
Not To Scale



PLAN

CONCRETE WASHOUT

Not To Scale



ELEVATION

Notes:

Installation:
Excavate A Cutoff Trench Into The Swale Banks And Extend It A Minimum Of 18 Inches Beyond The Top Of Bank. Place The Rock In The Cutoff Trench And Channel To The Limits And Dimensions Shown.

Extend The Rock At Least 18 Inches Beyond The Top Of Bank To Keep Overflow Water From Undercutting The Dam As It Re-Enters The Channel.

Space Dams So That The Upstream Dam Toe Elevation And The Overflow Weir Of The Downstream Dam Top Elevation Are The Same. (A 1% Swale Slope Would Equal 200' Spacing)

Stabilize The Channel Above The Uppermost Dam.

Erosion Resistant Lining Shall Extend At Least 6" Below Lowest Dam.

Maintenance:

Inspect Check Dams And The Channel After Each Storm Event, And Repair Any Damage Immediately. If Significant Erosion Occurs Between Dams, Install A Riprap Liner In That Portion Of The Channel.

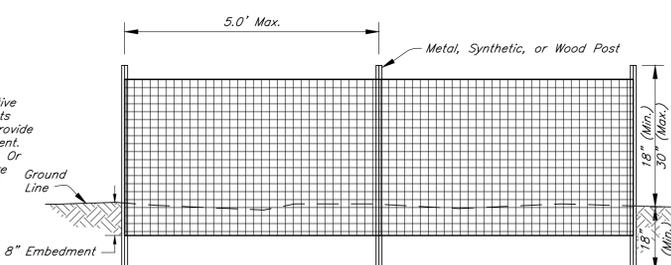
Remove Sediment Accumulated Behind Each Dam As Needed To Maintain Channel Capacity, To Allow Drainage Through The Dam, And To Prevent Large Flows From Displacing Sediment.

Add Aggregate To The Dams As Needed To Maintain Design Height And Cross Section.

When The Dams Are No Longer Needed, Remove The Aggregate And Stabilize Channel Using An Erosion Resistant Lining, If Necessary.

ROCK CHECK DAM

Not To Scale



UNSUPPORTED SILT FENCE

Notes:

Silt Fence Is Not Recommended For Use As A Diversion And Should Not Be Used Across A Stream, Channel, Ditch, Swale, Or Anywhere That Concentrated Flow Is Anticipated.

Lay Out The Location Of The Fence So That It Is Parallel To The Contour Of The Slope And At Least 10 Feet Beyond The Toe Of The Slope To Provide A Sediment Storage Area. Turn The Ends Of The Fence Up Slope Such That The Point Of Contact Between The Ground And The Bottom Of The Fence End Terminates At A Higher Elevation Than The Top Of The Fence At Its Lowest Point

Along The Entire Fence Line, Dig An 8 Inch Deep Flat Bottomed Or V-Shaped Trench. Place Fence According To Manufacturer's Recommendations.

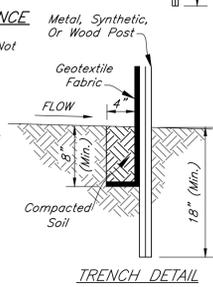
Maintenance:
Inspect The Silt Fence Weekly And After Each Storm Event.

If Fence Fabric Tears, Starts To Decompose, Or In Any Way Becomes Ineffective, Replace The Affected Portion Immediately.

Remove Deposited Sediment When It Reaches Half The Height Of The Fence At Its Lowest Point Or Is Causing The Fabric To Bulge.

Take Care To Avoid Undermining The Fence During Clean Out.

After The Contributing Drainage Area Has Been Stabilized, Remove The Fence And Sediment Deposits, Bring The Disturbed Area To Grade, And Stabilize.

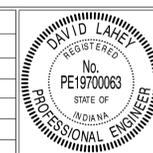


TRENCH DETAIL

SILT FENCE (SEDIMENT FENCE)

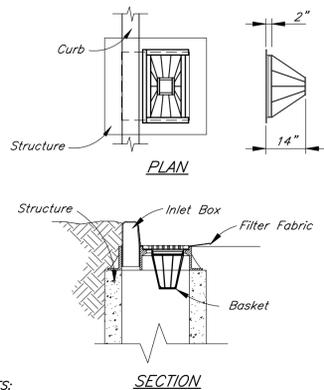
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REVISIONS		
Rev. No.	Description	Date



RECOMMENDED FOR APPROVAL	<i>David Laney</i>	10/01/200
DESIGN ENGINEER		DATE
APPROVED	<i>P.T. PKL</i>	11/14/2010
CITY ENGINEER		DATE
APPROVED	<i>Brian K. Smedecor</i>	11/23/2010
MAYOR AND PRESIDENT - BRIAN K. SMEDECOR		DATE
BOARD OF PUBLIC WORKS AND SAFETY		

CITY OF HOBART		SHEET 14 OF 16
EROSION CONTROL MEASURES		



NOTES:

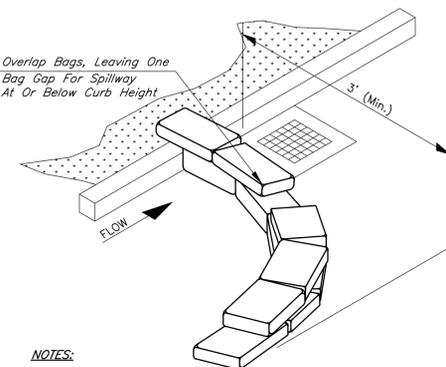
Installation:
Install Basket Curb Inlet Protection As Soon As Inlet Boxes Are Installed (New Development) Or Prior To Land Disturbing Activities (Existing Development).

If Necessary, Adapt Basket Dimensions To Fit Inlet Box Dimensions.

Remove The Grate And Install The Frame Into The Grate Opening. Cut And Install Geotextile Fabric According To The Manufacturer's Recommendations. Replace The Grate.

Maintenance:
Inspect Daily And After Each Storm And Remove Sediment. Replace Or Clean Geotextile Fabric As Needed. Remove Tracked On Sediment From The Street (But Not By Flushing With Water) To Reduce The Sediment Load On This Curb Inlet Practice.

BASKET CURB INLET PROTECTION
Not To Scale



NOTES:

Installation:
Fill Bags Approximately Half Full With Washed Aggregate.

Place Bags In A Row Curving From The Curb, And Away From The Inlet Up-Slope From The Inlet.

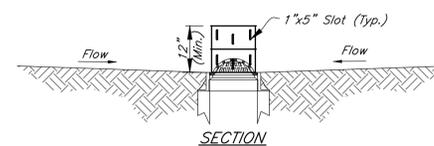
Overlap The Barrier Onto The Curb, Extending It A Minimum Of 3 Feet Into The Street.

Maintenance:
Inspect Daily And After Each Storm Event For Damage And Make Needed Repairs Immediately.

Inspect For Damage By Vehicular Traffic And Repair As Needed.

Remove Sediment (But Not By Flushing) When It Reaches Half The Height Of The Barrier.

STONE BAG INLET SEDIMENT BARRIER
Not To Scale



NOTES:

Installation:
Set Barrel Riser Height At Least 6 Inches Below Ground Elevation On The Downslope Side Of The Inlet To Prevent Runoff From By-passing The Inlet.

If Necessary, On The Low Side Of The Inlet, Build A Temporary Dike Compacted To 6 Inches Higher Than The Riser And Stabilize Appropriately.

Cut Slots At Least 1 Inch Wide And 5 Inches Long In The Barrel, And Cut Out The Barrel Ends.

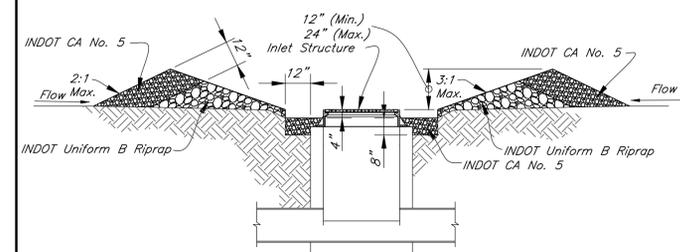
Place The Barrel Riser Over The Casting Grate.

Wrap Geotextile Fabric Around The Riser Before Placement, And Tuck It Under The Bottom Of The Barrel. Attach The Fabric Top To The Barrel With Cord Or Wire.

Maintenance:
Inspect The Structure Weekly And After Each Storm Event, And Remove Accumulated Sediment And Make Needed Repairs Immediately.

When The Contributing Drainage Area Has Been Stabilized, Remove, And Properly Dispose Of All Construction Material And Sediment, And Dispose Of Properly. Grade The Disturbed Area To The Elevation Of The Top Of The Inlet And Stabilize.

SLOTTED BARREL DROP INLET PROTECTION
Not To Scale



NOTES:

Installation:
Excavate An 8 Inch Deep And Minimum 12 Inch Wide Area Immediately Out From The Storm Drain.

Around That Excavated Area, Lay A Ring Of INDOT Uniform B Riprap To A Height 12-24 Inches Above The Top Of The Inlet, Per The Detail As Shown.

Cover The Outside Face Of The Ring With At Least 12 Inches Of INDOT CA No. 5 Gravel, Maintaining Slopes As Shown.

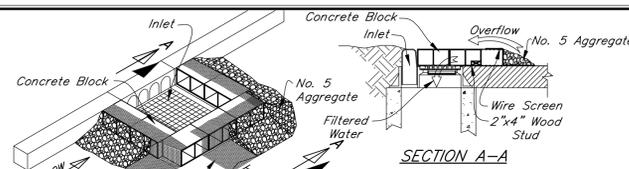
Place INDOT CA No. 5 In The 12 Inch Wide Excavation, From The Toe Of The Inside Slope To The Inlet Structure.

Maintenance:
Inspect The Structure Daily And After Each Storm Event, Removing Sediment And Making Needed Repairs Immediately.

When The Contributing Drainage Area Has Been Stabilized, Remove, And Properly Dispose Of Any Unstable Sediment And Construction Material, And Restabilize.

GRAVEL DONUT DROP INLET PROTECTION
Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-E01



NOTES:

Installation:
Install Protection As Soon As Streets Are Paved In A New Development Or Before Land Disturbing Activities In A Stabilized Area.

At Each Side Of The Inlet, Place A Concrete Block Lengthwise Out From The Curb With Its Openings Facing Outward To Serve As A Spacer Block.

Place A Row Of Blocks (Openings Facing Out) Across The Front Of The Inlet And Abutting The Spacer Blocks.

Insert A 2"x4" Wood Stud The Length Of The Inlet Plus Spacer Blocks Through The Front Most Openings Of The Spacer Blocks To Keep The Row Of Blocks Ahead Of It From Being Pushed Back Toward The Inlet.

Run Wire Mesh From The Top Of The Blocks, Down Their Outside Vertical Face, And Extended About 12 Inches Into The Street.

Install Geotextile Fabric Over The Wire Mesh For Additional Filtration (Optional).

Pile No. 5 Aggregate In Front Of The Barrier To The Top Of The Blocks.

Place A Traffic Barricade At Each Installed Measure For Safety And To Protect Measure Integrity.

Maintenance:
Inspect Daily And After Each Storm Event, Remove The Sediment And Replace The Aggregate. Replace The Geotextile Fabric, If Used.

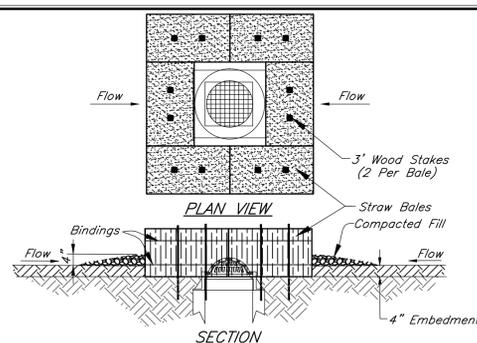
Periodically Remove Sediment And Tracked On Soil From The Street (But Not By Flushing With Water) To Reduce The Sediment Load On The Curb Inlet Protection.

Keep Grates Free Of Debris.

When The Contributing Drainage Area Has Been Stabilized, Remove The Aggregate, Wire Mesh, Concrete Blocks, Geotextile Fabric, Any Sediment, And Dispose Of Them Properly.

BLOCK AND GRAVEL CURB INLET PROTECTION
Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-E02



NOTES:

Installation:
Excavate A Trench At Least 4 Inches Deep And A Bale's Width Around The Inlet.

Place The Bales Lengthwise In The Trench So The Bindings Are Oriented Around The Sides, Rather Than Top And Bottom.

Allow The Bales To Overlap At The Corners And Abut Them Tightly Against Each Other.

Anchor The Bales With (2) 3/8 Inch Long 2"x2" Hardwood Stakes Or Rebar.

Tightly Wedge Straw Into Any Gaps Between Bales To Prevent Sediment Laden Water From Flowing Directly Into The Inlet.

Backfill Excavated Soil Material, Four Inches High, Against The Outside Perimeter Of The Straw Bale Barrier And Compact In Place.

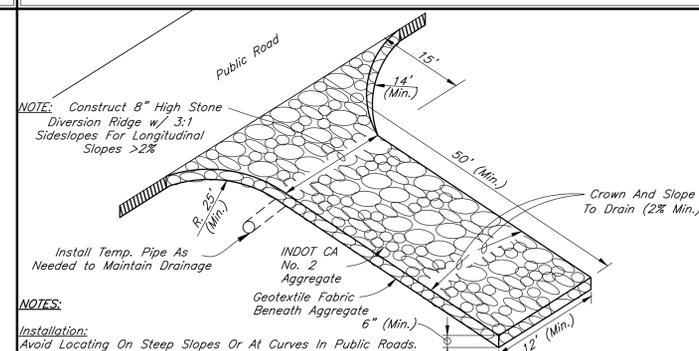
Maintenance:
Inspect The Straw Bale Drop Inlet Protection Daily And After Each Storm Event And Make Needed Repairs Immediately.

Remove Sediment And Debris From The Pool Area To Ensure Adequate Runoff Storage For The Next Rain, Taking Care To Not Damage Or Undercut The Bales.

When The Contributing Drainage Area Has Been Stabilized, Remove All Bales, Construction Material And Sediment And Dispose Of Properly. Grade The Disturbed Area To The Elevation Of The Top Of The Inlet And Stabilize.

STRAW BALE DROP INLET PROTECTION
Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-E03



NOTE: Construct 8" High Stone Diversion Ridge w/ 3:1 Sideslopes For Longitudinal Slopes >2%

NOTES:

Installation:
Avoid Locating On Steep Slopes Or At Curves In Public Roads.

Remove All Vegetation And Other Objectionable Material From The Foundation Area, And Grade The Foundation And Crown For Positive Drainage.

If Longitudinal Slope Is In Excess Of 2%, Construct A Water Bar (Ridge) About 15 Feet From The Entrance To Divert Runoff Away From The Road (See Detail Above).

Install Pipe Under The Pad (If Needed) To Maintain Proper Public Road Drainage.

If Wet Conditions Are Anticipated, Place Geotextile Fabric On The Graded Foundation To Improve Stability.

Place Aggregate To Dimensions And Grade Shown On The Erosion Control Plan, Leaving The Surface Smooth And Sloped For Drainage.

Top-dress The Drive With Washed Aggregate (INDOT CA No.53).

Divert All Surface Runoff And Drainage From The Stone Pad To A Sediment Trap Or Basin.

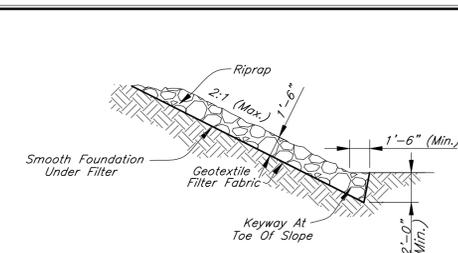
Maintenance:
Inspect Daily And After Each Storm Event Or Heavy Use.

Reshape Pad And Topdress As Needed For Drainage And Runoff Control.

Immediately Remove Mud And Sediment Tracked Or Washed Onto Public Roads By Brushing Or Sweeping. Flushing Should Only Be Used If The Water Is Conveyed Into A Sediment Trap Or Basin.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-E04



NOTES:

Installation:
Excavate Only Deep Enough For Both Filter And Riprap. Compact Any Fill Material To The Density Of The Surrounding Undisturbed Soil.

Cut A Keyway In Stable Material At The Base Of The Slope To Reinforce The Toe. Keyway Depth Should Be 1 1/2 Times The Design Thickness Of The Riprap, And Should Extend A Horizontal Distance Equal To The Design Thickness.

Place Geotextile Fabric On The Smoothed Foundation, Overlapping The Edges 12 Inches Minimum. Secure With Anchor Pins Spaced Every 3 Feet Along The Overlap.

Immediately After Installing The Filter, Add The Riprap To Full Thickness In One Operation. Do Not Dump Through Chutes Or Use Any Method That Causes Segregation Of Rock Sizes, Or That Will Dislodge Or Damage The Underlying Filter Material.

If Fabric Is Damaged, Remove The Riprap And Repair By Adding Another Layer Of Fabric, Overlapping The Damaged Area By 12 Inches.

Place Smaller Aggregate In Voids To Form A Dense, Uniform, Well Graded Mass. Blend The Riprap Surface Smoothly With The Surrounding Area To Eliminate Protrusions Or Over Falls.

Maintenance:
Inspect Periodically For Displaced Aggregate Material, Slumping And Erosion At Edges, Especially Downstream Or Downslope.

RIPRAP
Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-E05

DEVELOPMENT STANDARD - DETAIL DS-E06

DEVELOPMENT STANDARD - DETAIL DS-E07

DEVELOPMENT STANDARD - DETAIL DS-E08

REVISIONS		
Rev. No.	Description	Date



RECOMMENDED FOR APPROVAL: *David Laney* 10/10/2000
DESIGN ENGINEER

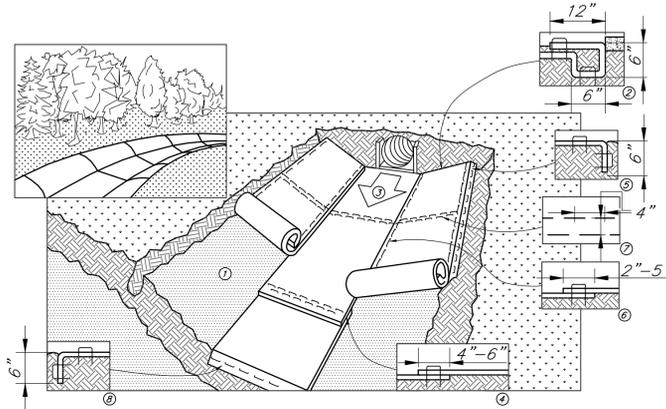
APPROVED: *P.T. PKLH* 10/14/2010
CITY ENGINEER

APPROVED: *Brian K. Smedecor* 11/2/2010
MAYOR AND PRESIDENT - BRIAN K. SMEDECOR
BOARD OF PUBLIC WORKS AND SAFETY

CITY OF HOBART

EROSION CONTROL (E) DEVELOPMENT STANDARDS

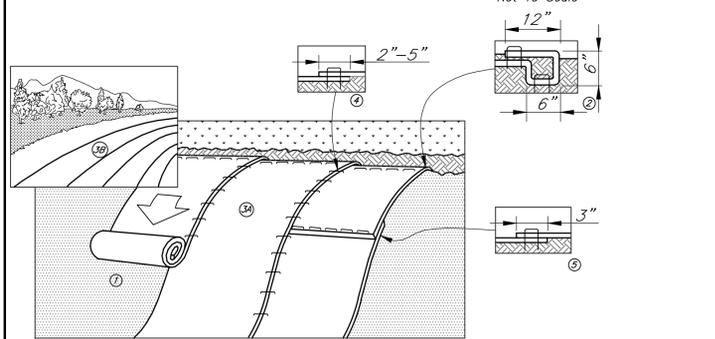
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- Prepare Soil Before Installing Blankets, Including Any Necessary Application Of Lime, Fertilizer, Or Seed.
- Begin At The Top Of The Channel By Anchoring The Blanket In A 6 Inch Deep By 6 Inch Wide Trench With Approximately 12 Inches Of Blanket Extended Beyond The Upslope Portion Of The Trench. Anchor The Blanket With A Row Of Staples/Stakes Approximately 12 Inches Apart In The Bottom Of The Trench. Backfill And Compact The Trench After Stapling. Apply Seed To Compacted Soil And Fold Remaining 12 Inch Portion Of Blanket Back Over Seed And Compacted Soil. Secure Blanket Over Compacted Soil With A Row Of Staples/Stakes Spaced Approximately 12 Inches Apart Across The Width Of The Blanket.
- Roll Center Blanket In Direction Of Water Flow In Bottom Of Channel. Blankets Will Unroll With Appropriate Side Against The Soil Surface. All Blankets Must Be Securely Fastened To Soil Surface By Placing Staples/Stakes In Appropriate Locations As Shown In The Staple Pattern Guide. When Using Optional Dot System, Staples/Stakes Should Be Placed Through Each Of The Colored Dots Corresponding To The Appropriate Staple Pattern.
- Place Consecutive Blankets End Over End (Shingle Style) With A 4-6 Inch Overlap. Use A Double Row Of Staples Staggered 4 Inches Apart And 4 Inches On Center To Secure Blankets.
- Full Length Edge Of Blankets At Top Of Side Slopes Must Be Anchored With A Row Of Staples/Stakes Approximately 12 Inches Apart In A 6 Inch Deep By 6 Inch Wide Trench. Backfill And Compact The Trench After Stapling.
- Adjacent Blankets Must Be Overlapped Approximately 2-5 Inches, (Depending On Blanket Type) And Stapled. To Ensure Proper Seam Alignment, Place The Edge Of The Overlapping Blanket (Blanket Being Installed On Top) Even With The Colored Seam Stitch On The Blanket Being Overlapped.
- In High Flow Channel Applications, A Staple Check Slot Is Recommended At 30-40 Foot Intervals. Use A Double Row Of Staples Staggered 4 Inches Apart And 4 Inches On Center Over Entire Width Of The Channel.
- The Terminal End Of The Blankets Must Be Anchored With A Row Of Staples/Stakes Approximately 12 Inches Apart In A 6 Inch Deep By 6 Inch Wide Trench. Backfill And Compact The Trench After Stapling.

EROSION CONTROL BLANKET – FLOWLINE APPLICATION

Not To Scale



- Prepare Soil Before Installing Blankets, Including Any Necessary Application Of Lime, Fertilizer, And Seed.
- Begin At The Top Of The Slope By Anchoring The Blanket In A 6 Inch Deep By 6 Inch Wide Trench With Approximately 12 Inches Of Blanket Extended Beyond The Upslope Portion Of The Trench. Anchor The Blanket With A Row Of Staples/Stakes Approximately 12 Inches Apart In The Bottom Of The Trench. Backfill And Compact The Trench After Stapling. Apply Seed To Compacted Soil And Fold Remaining 12 Inch Portion Of Blanket Back Over Seed And Compacted Soil. Secure Blanket Over Compacted Soil With A Row Of Staples/Stakes Spaced Approximately 12 Inches Apart Across The Width Of The Blanket.
- Roll The Blankets (A.) Down Or (B.) Horizontally Across The Slope. Blankets Will Unroll With Appropriate Side Against The Soil Surface. All Blankets Must Be Securely Fastened To Soil Surface By Placing Staples/Stakes In Appropriate Locations As Shown In The Staple Pattern Guide. When Using Optional Dot System, Staples/Stakes Should Be Placed Through Each Of The Colored Dots Corresponding To The Appropriate Staple Pattern.
- The Edges Of Parallel Blankets Must Be Stapled With Approximately 2-5 Inches Overlap Depending On Blanket Type. To Ensure Proper Seam Alignment, Place The Edge Of The Overlapping Blanket (Blanket Being Installed On Top) Even With The Colored Seam Stitch On The Previously Installed Blanket.
- Consecutive Blankets Spliced Down The Slope Must Be Placed End Over End (Shingle Style) With An Approximate 3 Inch Overlap. Staple Through Overlapped Area, Approximately 12 Inches Apart Across Entire Blanket Width.

NOTES:

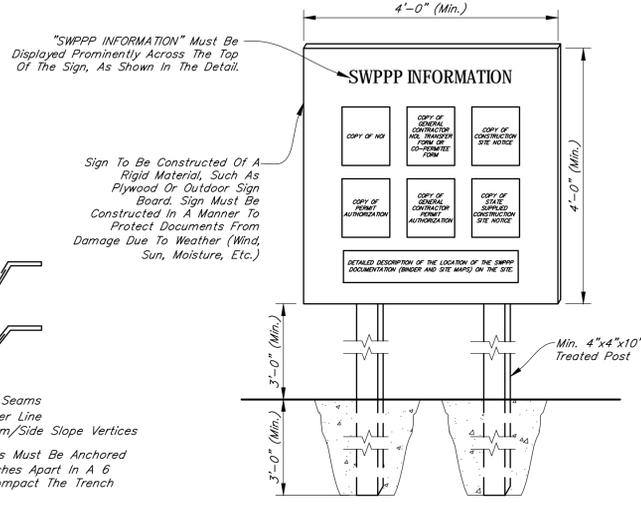
Overlap The Blankets With The Direction Of The Flow Of The Water
NOTE:
* In Loose Soil Conditions, The Use Of Staple Or Stake Lengths Greater Than 6 Inches May Be Necessary To Properly Secure The Blankets.

EROSION CONTROL BLANKET – SLOPE APPLICATION

Not To Scale

If Construction Activities Take Place During The Months Of November Through February, Use Dormant Seeding Practices In Place Of Temporary And Permanent Seeding Practices.

See Chapter 7 Of The *Indiana Storm Water Quality Manual*, For Additional Seeding Recommendations.



SWPPP INFORMATION SIGN

Not To Scale

"SWPPP INFORMATION" Must Be Displayed Prominently Across The Top Of The Sign, As Shown In The Detail.

Sign To Be Constructed Of A Rigid Material, Such As Plywood Or Outdoor Sign Board. Sign Must Be Constructed In A Manner To Protect Documents From Damage Due To Weather (Wind, Sun, Moisture, Etc.)

- Critical Points
A. Overlaps And Seams
B. Projected Water Line
C. Channel Bottom/Side Slope Vertices

NOTES:

- The SWPPP Information Sign Must Be Located Near The Construction Entrance Of This Site, Such That It Is Accessible And Viewable By The General Public, But Not Obstructing Views As To Cause A Safety Hazard.
- All Posted Documents Must Be Maintained In A Clearly Readable Condition At All Times Throughout Construction And Until The Notice-Of-Termination (NOT) Is Filed For The Permit.
- Contractor Shall Post Other Storm Water And/Or Erosion And Sediment Control Related Permits On The Sign As Required.
- Sign Shall Be Located Outside Of Public Right-Of-Way And Easements Unless Approved By The Hobart MS4 Operator.

SEEDING:

The Following Table Is For General Seeding Information Only. Consult The *Indiana Storm Water Quality Manual* For Recommendations Relating To Steep Banks And Cuts, High Maintenance Areas, And Channels And Areas Of Concentrated Flow.

SEEDS:

- 40 Percent Kentucky Bluegrass
- 40 Percent Creeping Red Fescue
- 20 Percent Annual Rye Grass

FERTILIZER:

Commercial Fertilizer (12-12-12)

STRAW:

Clean And Free Of Weed Seeds

Spread Fertilizer Uniformly Over Finish Graded Surfaces At A Rate Of 20 Pounds Per 1,000 Square Feet. Thoroughly Disk, Harrow, Or Rake Fertilizer Into Soil To Depth Not Less Than 2 Inches.

Distribute Seed Mix Same Day As Fertilizer Is Applied. Spread Evenly At A Rate Of 3 Pounds Per 1,000 Square Feet. Rake Lightly And Compact Areas With 100 Pound Roller.

Cover Areas With Straw Evenly Spread At A Rate Of 2 Tons Per Acre Immediately After Seeding. Water Areas With Fine Spray. Do Not Flood Or Create Washes. Protect Seeded Areas From Erosion.

Continue Watering Of These Areas On A Daily Basis For The Remainder Of The Construction Period.

Hold Sloped Areas Steeper Than 2 (Horizontal) To 1 (Vertical) With Wire Mesh Or Stakes And Wire.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Temporary Seeding Dates												
Wheat Or Rye												
Oats												
Annual Rye Grass												
Permanent Seeding Dates												
Non-irrigated*												
Irrigated												
Dormant Seeding**												

- Irrigation Required
- * Seeding Dates May Be Extended 5 Days If Mulch Applied And Planted Late Summer
- ** Increase Seeding Rate By 50%

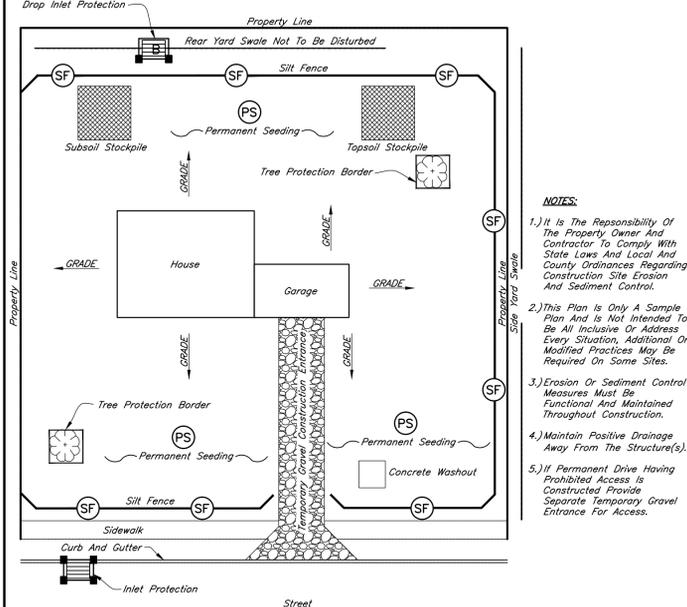
REVISIONS		
Rev. No.	Description	Date



RECOMMENDED FOR APPROVAL: *David Laney* 10/10/2000
DESIGN ENGINEER
DATE

APPROVED: *P.T. P.K.L.H.* 10/14/2010
CITY ENGINEER
DATE

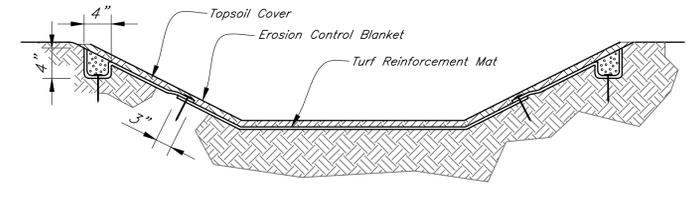
APPROVED: *Brian K. Smedecor* 11/2/2010
MAYOR AND PRESIDENT - BRIAN K. SMEDECOR
BOARD OF PUBLIC WORKS AND SAFETY
DATE



SAMPLE EROSION CONTROL SITE PLAN

Not To Scale
(For Construction Of Typical Single Family Dwellings.)

DEVELOPMENT STANDARD – DETAIL DS-E09



Extend Turf Reinforcement Mat To Accommodate Maximum Designed Flow Depth

NOTES:

- Installation:**
Select The Type Of Mat Recommended For The Site Conditions (Slope, Channel, Flow Velocity) And Problem To Be Addressed.
Install Any Practices Needed To Control Erosion And Runoff, Such As Temporary Or Permanent Diversions, Slope Drains, Sediment Basins/Traps, Silt Fence Or Straw Bale Dams.
Grade The Site As Specified.
Install The Mat According To Manufacturer's Specifications.
Backfill Topsoil To A Depth Equal To The Thickness Of The Mat.
Seed The Area After The Mat Has Been Installed And Backfilled With Soil.
Mulch The Area, Or Use Erosion Control Blankets To Stabilize The Surface.
- Maintenance:**
Until The Surface Is Stabilized, Inspect Weekly And After Each Storm Event For Erosion Exposing The Mat.
If A Specific Area Shows Erosion, Add Soil And Restabilize.

TURF REINFORCEMENT MAT

Not To Scale

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EROSION CONTROL MEASURES

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