

# Sandwich Public Safety Complex and Fire Substation #2 Addition / Renovation - General Bid

<u>Category:</u>	Fire and Police Stations, Government Offices	<u>Project ID #:</u>	1004361454
<u>Street Address:</u>	130 Main St. Sandwich MA 02563	<u>Confirmed Value</u>	\$12,500,000.00
<u>County:</u>	Barnstable	<u>Stage:</u>	BIDDING - Biddate Set
<u>Bid Date:</u>	6/14/2017 , 02:00PM		
<u>Architect:</u>	Pomroy Associates LLC		
<u>Documents Available:</u>	Plans, Specs, Addenda available in Insight	Plans available from Pomroy Associates LLC	
<u>Last Update:</u>	5/31/2017	Additional Documents - Planholders List were Added/Updated	

## Personal Notes

User	Note	Update Date	Private?
Adam Sweet	6K GAL SEPTIC TANK (CONCRETE)	6/1/2017	False

## Notes

- Scope Demolition, site work, renovation and addition to a mixed-use development in Sandwich, Massachusetts. Completed plans call for the addition of a fire / police facility; for the demolition of a fire / police facility; municipal facility; for the renovation of a fire / police facility; for site work for a fire / police facility; municipal facility; and municipal facility. \*General Bid Deadline 6/7/17 Time 2:00 P.M. Sandwich Public Safety Complex and Fire Substation #2 Addition / Renovation. Total of three Buildings for construction. Contractor Qualification DCAM Certificate Prequalification of the General and filed sub-bidders has been completed by the awarding authority. A listing of the prequalified contractors has been provided in the bid documents.
- Notes Development include(s): Addition, Demolition, Site Work, Renovation Pre-Bid Meeting: 05/10/2017 10:00AM Town of Sandwich, Main Town Hall 130 Main Street, 02563 Bid Date: 06/14/2017 02:00PM Bid date changed to 06/14/2017 as per Adda 2. Town of Sandwich, Main Town Hall 130 Main Street, Sandwich, MA 02563
- Details [Division 2]: Hazardous Material Abatement, Clearing, Dewatering, Shoring, Earthwork, Grading, Slope Protection & Erosion Control, Marine Work, Paving & Surfacing, Unit Pavers, Water Systems, Wells, Sewerage & Drainage, Fences & Gates, Landscaping. [Division 3]: Concrete Formwork, Concrete Reinforcement, Structural Concrete. [Division 4]: Clay Unit Masonry, Concrete Unit Masonry, Marble. [Division 5]: Structural Steel, Metal Decking, Metal Fabrications, Metal Stairs, Ornamental Metals, Expansion Joints. [Division 6]: Rough Carpentry, Prefabricated Structural Wood, Wood Trusses, Finish Carpentry, Architectural Woodwork. [Division 7]: Waterproofing, Insulation, Firestopping, Shingles, Manufactured Roofing & Siding, Membrane Roofing. [Division 8]: Metal Doors, Coiling Doors and Grilles, Entrances & Storefronts, Hardware, Glass & Glazing. [Division 9]: Ceiling Suspension Systems, Lath & Plaster, Drywall/Gypsum, Tile, Terrazzo, Acoustical Ceilings, Acoustical Walls, Resilient Flooring, Carpet, Painting. [Division 10]: Visual Display Boards, Compartments & Cubicles, Louvers & Vents, Wall & Corner Guards, Access Flooring, Bulletin Boards, Interior Signs, Lockers, Protective Covers, Partitions, Operable Partitions, Storage Shelving, Toilet & Bath Accessories. [Division 12]: Window Treatment, Furniture. [Division 13]: Pre-Engineered Structures. [Division 14]: Elevators, Material Handling Systems, Hoists & Cranes. [Division 15]: Fire Protection Systems, Plumbing Fixtures, Water Heaters, Boilers, Heat Pumps, Air Handling, Ductwork. [Division 16]: Service/Distribution, Interior Lighting, Standby Power Generator Systems, Alarm & Detection Systems, Voice & Data Systems.

## Additional Details

<u>Listed On:</u>	4/28/2017	<u>Floor Area:</u>	
<u>Contract Type:</u>		<u>Work Type:</u>	Addition/Alteration
<u>Stage Comments 1:</u>		<u>Floors Below Grade:</u>	
<u>Stage Comments 2:</u>		<u>Owner Type:</u>	City
<u>Bid Date:</u>	6/14/2017	<u>Mandatory Pre Bid Conference:</u>	
<u>Invitation #:</u>	11046.08	<u>Commence Date:</u>	7/8/2017
<u>Structures:</u>	7	<u>Completion Date:</u>	1/1/2019
<u>Single Trade Project:</u>		<u>Site Area:</u>	
<u>Floors:</u>		<u>LEED Certification Intent:</u>	
<u>Parent Project ID:</u>		<u>Units:</u>	
<u>Parking Spaces:</u>			

## Project Participants

Company Role	Company Name	Contact Name	Address	Phone	Email	Fax
Civil Engineer	Garcia, Galuska, DeSousa Inc.		370 Faunce Corner Rd., Dartmouth, MA 02747	(508) 998-5700	info@g-g-d.com	(508) 998-0883
Consultant	Outback Engineering		165 East Grove St, Middleboro, MA 02346	(508) 946-9231		(508) 947-8873
Consultant	Kaestle Boos Associates Inc. - Connecticut		416 Slater Road P.O. Box 2590, New Britain, CT 06050	(860) 229-0361		(860) 229-5303
Consultant	Mitchell Associates Architects		29 Thatcher Park Road, Voorheesville, NY 12186	(518) 765-4571	archiram@aol.com	(518) 765-2950
Consultant	Integrated Security Systems, Inc		325 Godshall Drive, Harleysville, PA 19438	(855) 572-7233		
Mechanical and Electrical Engineer	Building Engineering Resources Inc.		66 Main St, North Easton, MA 02356	(508) 230-0260	ber@ber-engineering.com	(508) 230-0265
Owner	Town of Sandwich		130 Main St., Sandwich, MA 02563	(508) 888-0340	townhall@townofsandwich.net	(508) 888-2497
Structural Engineer	Toce Structural Engineering		114 Lepage Drive, Southington, CT 06489	(860) 621-8616		
Architect	Pomroy Associates LLC	Taylor MacDonald	49 Bedford St, East Bridgewater, MA 02333	(508) 648-2061	tmacdonald@pomroyassociates.com	(508) 456-4227

## Bidders

Company Name	Added Date	Address	Phone	Email	Bidding Role	Bid Rank	Bid Value	Fax Number
Chapman Waterproofing Company	5/19/2017	395 Columbia Rd PO Box 255300, Boston, MA 02125	(617) 288-3000	info@chapmanwaterproofing.com	Prospective Bidder - General Contractor			(617) 288-3005
WES Construction Corp.	5/19/2017	650 Industrial Dr., Halifax, MA 02338	(781) 294-1080	kvogel@wesconstructioncorp.com	Prospective Bidder - General Contractor			(781) 294-4597
M. O'Connor Contracting Inc	5/19/2017	19 Ledge Hill Rd, P. O. Box 320277, West Roxbury, MA 02132	(617) 327-3070	info@moccontracting.com	Prospective Bidder - General Contractor			(617) 327-9731
M F Construction Corporation	5/4/2017	350 Boyd's Lane, Portsmouth, RI 02871	(401) 683-2230		Prospective Bidder - General Contractor			(401) 683-6581
Paul J. Rogan Co., Inc.	5/19/2017	25 Hayward St., Braintree, MA 02184	(781) 843-1900	info@pauljroganco.com	Prospective Bidder - General Contractor			(781) 843-1061
Brite-Lite Electrical Co	5/19/2017	11 Front Street, Weymouth, MA 02188	(781) 340-9102		Prospective Bidder - General Contractor			(781) 340-1674
Annese Electrical Services	5/19/2017	280 Libbey Industrial Pkwy., Weymouth, MA 02189	(781) 337-6462		Prospective Bidder - General Contractor			(781) 337-6559
Marmelo Bros	5/19/2017	13 Ventura Dr, North Dartmouth, MA 02747	(508) 995-6582	sandy@marmelocconstruction.com	Prospective Bidder - General Contractor			(508) 995-6926
Rockwell Roofing Inc.	5/19/2017	44 Pond St, Leominster, MA 01453	(978) 537-7825	jpicaard@rockwellroofing.com	Prospective Bidder - General Contractor			(978) 537-4132
Boston Building & Bridge Corp.	5/19/2017	1094 Bluehill Ave., Milton, MA 02186	(617) 333-0342	info@bbbcorp.com	Prospective Bidder - General Contractor			(617) 333-6895
Wayne J. Griffin Electric, Inc.	5/4/2017	116 Hopping Brook Rd, Holliston, MA 01746	(508) 429-8830	imorton@wjgei.com	Prospective Bidder - General Contractor			(508) 429-7825
Commercial Masonry Corp.	5/19/2017	11 Aldrin Road, Plymouth, MA 02360	(508) 830-1700	rsm@CommercialMasonry.com	Prospective Bidder - General Contractor			(508) 830-1702

Apex Corporation	5/19/2017	56 Charles St. , Abington, MA 02351	(781) 871-6227	apex@apexhvac.com	Prospective Bidder - General Contractor			(781) 871-5280
RAC Builders, Inc.	5/19/2017	12 School St , Agawam, MA 01001	(413) 786-8401		Prospective Bidder - General Contractor			(413) 786-8988
Central Ceilings	5/19/2017	36 Norfolk Ave , South Easton, MA 02375	(508) 238-6985	bid_invites@centralceilings.com	Prospective Bidder - General Contractor			(508) 238-2191
Enterprise Equipment Co. Inc.	5/4/2017	276 Libbey Pkwy , Weymouth, MA 02189	(781) 331-0900	info@enterpriseequip.com	Prospective Bidder - General Contractor			(781) 337-2940
A & A Window Products, Inc.	5/19/2017	15 Joseph Street , Malden, MA 02148	(781) 322-9282	sales@aawindowproducts.com	Prospective Bidder - General Contractor			(781) 321-0833
Aluminum & Glass Concepts Inc	5/19/2017	210 Andover St Ste 25 P.O. Box 279, Wilmington, MA 01887	(978) 658-3591	atryder@aluminumandglass.com	Prospective Bidder - General Contractor			(978) 657-5819
Modern Glass & Aluminum Inc	5/19/2017	42 Eastman Street PO Box 1081, Easton, MA 02334	(508) 238-0152		Prospective Bidder - General Contractor			(508) 238-8351
Capeway Roofing Systems	5/19/2017	664 Sandford Road , Westport, MA 02790	(508) 674-0800	krybicki@capewayroofing.com	Prospective Bidder - General Contractor			(508) 678-2670
Lockheed Window Corporation	5/4/2017	925 South Main St. , Pascoag, RI 02859	(401) 568-3061	info@lockheedwindow.com	Prospective Bidder - General Contractor			(401) 568-2273
Arden Engineering Constructors LLC	5/19/2017	505 Narragansett Park Dr. , Pawtucket, RI 02861	(401) 727-3500		Prospective Bidder - General Contractor			(401) 727-3540
Kneeland Plumbing & Heating, Inc.	5/4/2017	63 Hammond St. PO Box 311, Rowley, MA 01969	(978) 948-2282	johnkneeland@comcast.net	Prospective Bidder - General Contractor			(978) 948-5068
Cam HVAC & Construction Inc.	5/19/2017	116 Lydia Ann Road , Smithfield, RI 02917	(401) 232-7230	info@camhvac.com	Prospective Bidder - General Contractor			(401) 232-7290
R&R Window Contractors, Inc.	5/19/2017	One Arthur St. , Easthampton, MA 01027	(413) 527-7500	tsmith@rrwindow.com	Prospective Bidder - General Contractor			(413) 527-0289
DeLucca Fence Company Inc	5/19/2017	5 Old Ferry Road , Methuen, MA 01844	(978) 688-2877	estimating@deluccafence.com	Prospective Bidder - General Contractor			(978) 688-6030
Chandler Architectural Products	5/4/2017	255 Interstate Drive , West Springfield, MA 01089	(413) 733-1111		Prospective Bidder - General Contractor			(413) 737-6101
Maron Construction	5/19/2017	180 Buttonhole Dr. , Providence, RI 02909	(401) 433-7534		Prospective Bidder - General Contractor			
J. W. Dubis & Sons	5/19/2017	79 Stony Hill Road , Chatham, MA 02633	(508) 945-0283		Prospective Bidder - General Contractor			(508) 945-0288
Capital Carpet & Flooring Specialists Inc.	5/19/2017	64 Industrial Way , Wilmington, MA 01887	(781) 935-9430		Prospective Bidder - General Contractor			(781) 935-5737
Costa Brothers Masonry, Inc	5/19/2017	2 Lambeth Park Dr. , Fairhaven, MA 02719	(508) 991-7634	cbm@costamaso.com	Withdrawn - General Contractor			(508) 991-7635
Cenedella Masonry Inc.	5/19/2017	19 East Walnut Street , Milford, MA 01757	(508) 473-7836		Prospective Bidder - General Contractor			(508) 473-0380
Homer Contracting, Inc.	5/19/2017	195 Broadway , Arlington, MA 02474	(781) 648-3372	info@homercontracting.com	Prospective Bidder - General Contractor			(781) 648-4915
West Floor Covering, Inc.	5/19/2017	42 Winter St. Suite 11, Pembroke, MA 02359	(781) 826-9022	info@westfloorcovering.com	Prospective Bidder - General Contractor			(781) 826-7073
Acme Waterproofing Co., Inc	5/19/2017	21 Nightingale Street , Quincy, MA 02169	(781) 982-2250	info@acmewp.com	Prospective Bidder - General Contractor			(781) 982-2694

Air Cleaning Specialist of NE	5/19/2017	1525 Hanover Street , Hanover, MA 02339	(781) 826-9755	info@aircleaningne.com	Prospective Bidder - General Contractor		(781) 829-0240
P.A. Landers - Hanover Office	5/19/2017	351 Winter St. P.O. Box 217, Hanover, MA 02339	(781) 826-8818		Withdrawn - General Contractor		(781) 829-8934
Greenwood Industries Inc.	5/19/2017	640 Lincoln St , Worcester, MA 01605	(508) 865-4040		Prospective Bidder - General Contractor		(508) 865-1123
Belcour Corporation	5/19/2017	99 Front St. PO Box 813, Woonsocket, RI 02895	(401) 762-4685		Prospective Bidder - General Contractor		(401) 762-4666
The American Service Company	5/19/2017	35 Hanna Street , Quincy, MA 02169	(617) 471-5953	info@americanservicecompany.com	Prospective Bidder - General Contractor		(617) 770-4224
Araujo Bros Plumbing & Heating Inc.	5/4/2017	224 Nyles Lane , Acushnet, MA 02743	(508) 998-7006	info@araujobrosplumbing.com	Prospective Bidder - General Contractor		(508) 998-1727
Feeley McAnespie Inc.	5/19/2017	200 Tanner Street , Lowell, MA 01852	(978) 441-2300	imcanesDie@fmir-oofino.com	Prospective Bidder - General Contractor		(978) 441-2316
Lan-Tel Communications, Inc.	5/4/2017	1400 Providence Highway Building Suite 2000, Norwood, MA 02062	(781) 551-8599	info@lan-tel.com	Prospective Bidder - General Contractor		(781) 551-8667
Fernandes Masonry Inc	5/19/2017	1031 Phillips Road , New Bedford, MA 02745	(508) 998-2121	geri@fernandesmasonrv.com	Withdrawn - General Contractor		(508) 985-0003
Systems Contracting, Inc	5/19/2017	7 Scobee Circle , Plymouth, MA 02360	(508) 746-7000	kenbombard@systeminc.com	Prospective Bidder - General Contractor		(508) 746-7717
Acoustek Inc	5/19/2017	20 Ventura Dr. , North Dartmouth, MA 02747	(508) 995-9563		Prospective Bidder - General Contractor		(508) 995-9582
Seekonk heating services	5/19/2017	911 taunton ave, Seekonk, MA 02771	(508) 336-3069		Prospective Bidder - General Contractor		(508) 336-0883
Stanley Roofing Co Inc	5/4/2017	42 Mitchell Rd , Ipswich, MA 01938	(978) 356-7958	jason@stanleyroof.com	Prospective Bidder - General Contractor		(978) 356-1499
CJM Services, Inc	5/19/2017	50 Kerry Pl P.O. Box 424, Norwood, MA 02062	(781) 440-0000	info@cjm-servicesinc.com	Prospective Bidder - General Contractor		(781) 440-0046
United Steel Inc	5/19/2017	164 School St , East Hartford, CT 06108	(860) 289-2323	bcicccone@unitedsteel.com	Prospective Bidder - General Contractor		(860) 289-6350
Brennan Interior Contractors	5/19/2017	127 Camelot Dr Suite 2, Plymouth, MA 02360	(508) 830-3830	estimating@brennancontractors.com	Prospective Bidder - General Contractor		(508) 830-3833
M-V Electrical Contractors, Inc	5/19/2017	10 Conduit St , Acushnet, MA 02743	(508) 995-3826		Prospective Bidder - General Contractor		(508) 995-0151
Pavilion Floors, Inc.	5/19/2017	90 Commerce Way , Woburn, MA 01801	(781) 933-8500	info@pavilionfloors.com	Prospective Bidder - General Contractor		(781) 932-8844
Brait Builders Corporation	5/19/2017	506 Plain St. Suite 201, Marshfield, MA 02050	(781) 837-6400	info@braitbuilders.com	Prospective Bidder - General Contractor		(781) 837-6022
Silktown Roofing, Inc.	5/19/2017	134 Ferry Street , South Grafton, MA 01560	(508) 887-8908		Prospective Bidder - General Contractor		(508) 887-8918
Solid Earth Technologies Inc.	5/19/2017	3 Howe Drive Unit 3, Amherst, NH 03031	(603) 882-5319		Prospective Bidder - General Contractor		(603) 882-7822
Mello Electric Co	5/19/2017	138 Morgan St , Fall River, MA 02721	(508) 679-3100		Prospective Bidder - General Contractor		(508) 679-1221
Bello Painting Co.	5/19/2017	585 East St. , Wewmouth. MA	(781) 331-5600		Prospective Bidder - General		(781) 331-5603

		02189			Contractor			
Dagle Electrical Construction Corp.	5/19/2017	68 Industrial Way , Wilmington, MA 01887	(800) 379-1459	dec@deccorp.com	Prospective Bidder - General Contractor			(781) 937-7678
J.R. Vinagro Corp.	5/19/2017	2208 Plainfield Pk. , Johnston, RI 02919	(401) 943-7100	vanessad@jrvinagorocoro.com	Prospective Bidder - General Contractor			(781) 558-5780
Titan Roofing Inc.	5/19/2017	200 Tapley Street , Springfield, MA 01104	(413) 536-1624	mail@titanroofing.com	Prospective Bidder - General Contractor			(413) 533-2560
New Generation Painting	5/19/2017	One Newbury Street, Suite 207, Peabody, MA 01960	(978) 535-0600		Prospective Bidder - General Contractor			(978) 535-0677
JM's Painting	5/4/2017	22 Washington St. , Dedham, MA 02026	(781) 381-0127		Prospective Bidder - General Contractor			(781) 381-0164
DDC Construction Inc	5/19/2017	20 Query Street , New Bedford, MA 02745	(508) 992-7112	mike@ddconstruc	Prospective Bidder - General Contractor			(508) 992-7429
Dandis Contracting Inc	5/19/2017	1020 Turnpike Street, Unit 12, Canton, MA 02021	(781) 828-9313	info@dandiscontr	Prospective Bidder - General Contractor			(781) 828-9314
CTA Construction Co. Inc.	5/19/2017	400 Totten Pond Rd Suite 2nd Floor, Waltham, MA 02451	(781) 786-6600	info@ctaconstruct	Prospective Bidder - General Contractor			(781) 786-6670
The Cheviot Corporation	5/19/2017	55 Fourth Avenue , Needham Hgts, MA 02494	(781) 449-1100	info@cheviotcorp.	Prospective Bidder - General Contractor			(781) 449-1109
Drizos Contracting LLC	5/19/2017	101 Middlesex Turnpike Ste 6 - 353, Burlington, MA 01803	(978) 460-2241	info@drizoscontra	Prospective Bidder - General Contractor			(781) 221-2245
American Electrical Construction, Inc.	5/19/2017	180 South Meadow Road Unit C, Plymouth, MA 02360	(508) 747-5600	aec@americanele	Prospective Bidder - General Contractor			(508) 747-5601
Yankee Sprinkler	5/19/2017	612R Plymouth St. Ste 1, East Bridgewater, MA 02333	(508) 378-7212	mpayton@ysc-	Prospective Bidder - General Contractor			(508) 378-7215
Setronics	5/19/2017	5 Executive Park Dr. , North Billerica, MA 01862	(800) 640-4550	service@setronics.	Prospective Bidder - General Contractor			
Keltic Painting	5/19/2017	189 Hill Road , Thompson, CT 06277	(860) 963-7812		Prospective Bidder - General Contractor			(860) 315-7073
Kapiloff's Glass, Inc.	5/4/2017	5 Hoosac St. , Adams, MA 01220	(844) 527-4527	estimating@kapgl	Prospective Bidder - General Contractor			(844) 634-5277
Encore Contracting Services Inc	5/19/2017	375 Common St. , Lawrence, MA 01840	(978) 258-1744	jpena@encorecsi.	Prospective Bidder - General Contractor			(978) 655-1758
Beacon Waterproofing and Restoration	5/19/2017	29 Smith Pl , Cambridge, MA 02138	(617) 868-0104		Withdrawn - General Contractor			(617) 868-0105
Above & Beyond Construction	5/19/2017	2141 West Crescent Avenue , Park Ridge, IL 60068	(847) 696-9505		Prospective Bidder - General Contractor			
Empire Masonry Corporation	5/19/2017	231 Norfolk Street , Walpole, MA 02081	(508) 660-1011	smccormick@em	Prospective Bidder - General Contractor			(508) 660-1028
Lighthouse Masonary	5/19/2017	150 John Vertente Blvd. , New Bedford, MA 02745	(508) 995-0192	contact@lighthou	Prospective Bidder - General Contractor			(508) 207-1147
Casey Plumbing & Heating, Inc.	5/19/2017	P.O. Box 404 , Harwich Port, MA 02646	(500) 432-3233	info@caseyplumb	Prospective Bidder - General Contractor			(500) 274-1957
Veterans	5/19/2017	523 Great Road .	(781) 659-	mvoner@vetdevco	Withdrawn -			(781) 659-

Development Corporation	17	Littleton, MA 01460	4050	rp.com	General Contractor		0505
F J Roberts Floor	5/19/2017	44 Garden Street Unit Suite 8, Danvers, MA 01923	(978) 777-6820		Prospective Bidder - General Contractor		(978) 777-6821
Robert W Irvine & Sons	5/19/2017	147 Blossom St, Lynn, MA 01902	(781) 581-0464		Prospective Bidder - General Contractor		(781) 581-2860
Northeast Automatic Sprinkler	5/19/2017	25 Marion Drive, Kingston, MA 02364	(781) 582-2222		Prospective Bidder - General Contractor		(781) 582-2211

## Planholders

Company Name	Address	Phone	Email	Fax
North Shore Steel Co.	16 Oakville Street P.O. Box 330, Lynn, MA 01905	(781) 598-1645	jncburrill@gmail.com	(781) 598-9700
V & G Iron Works	1500 Shawsheen St. , Tewksbury, MA 01876	(978) 851-9191	leab@vgiron.com	(978) 851-9171
Kaestle Boos Associates Inc. - Massachusetts	325 Foxborough Blvd. Ste. 100, Foxboro, MA 02035	(508) 549-9906		(508) 549-9907
Intelligent Signage	45 Chapel Road , Amherst, MA 01002	(413) 253-9147		(413) 253-9084
Harold Brothers Mechanical	44 Woodrock Rd , Weymouth, MA 02189	(781) 871-2111	info@haroldbros.com	(781) 871-2002
F.W. Webb Company - Methuen	700 Broadway, , Malden, MA 02148	(781) 322-7111		(781) 325-7051
Heritage Iron Works	P.O. Box 609 , Centerville, MA 02632	(508) 778-9383		(508) 778-9383
Viking Industries Inc	32 Spring St. , Barrington, RI 02806	(401) 246-1855		(401) 246-1366
Maron Construction Co., Inc	180 Buttonhole Drive , Providence, RI 02909	(401) 272-4930		(401) 751-7192
Acranom Masonry	80 Industrial Park Rd , Middletown, CT 06457	(860) 349-9000		
American Energy Management	221 Boston Post Road East , Marlborough, MA 01752	(508) 480-8200		(508) 485-0669
SpaceSaver Corporation	1450 Janesville Avenue , Fort Atkinson, WI 53538	(920) 563-6362		(920) 563-2702
Nexus Building Automation	7 Crescent Ave , Scituate, MA 02066	(339) 526-0045		(781) 545-7764
A Jandris & Sons	202 High St, , Gardner, MA 01440	(978) 632-0089		(978) 632-6065
Trova Design Consultants, Inc	2 South Street, Suite 230, Pittsfield, MA 01201	(413) 464-0197	info@trovadesign.com	
Renewable Construction Services	1130 Acushnet Avenue , New Bedford, MA 02746	(508) 281-2058		
Air Distribution Corporation	353 Howard Street , Brockton, MA 02302	(781) 828-9595	info@air-distribution.com	(781) 828-9656
Southern Aluminum Finishing Co.	1581 Huber St NW , Atlanta, GA 30318	(404) 355-1560		(404) 350-0581

## Contracts

Classification	Conditions	Bonding	Bid Date	Bids To	Bid Type
General Contractor		Bid:5.00%,Perf:100.00%,Pay:100.00%	6/14/2017	Owner	Open Bidding

## History

User	Viewed	First Viewed Date	Currently Tracked?	Date Tracked
Adam Sweet	True	5/5/2017	False	



**SEPTIC SYSTEM BASIS OF DESIGN**

**DAILY SEWAGE FLOW:**

USE: MUNICIPAL POLICE STATION & FIRE SUB STATION  
**FIRE STATION FLOW:**  
 4 BEDROOMS AT 110 GPD/BEDROOM = 440 GPD  
 OFFICE SPACE: 2,735 SF x 75 GPD/1,000 SF = 205 GPD  
 FUTURE OFFICE SPACE: 2,200 SF x 75 GPD/1,000 SF = 165 GPD  
 DAILY DESIGN FLOW = 810 GPD  
**POLICE STATION FLOW:**  
 USE: MUNICIPAL POLICE STATION  
 OFFICE SPACE: 13,928 GSF AT 75 GPD/1,000 GSF = 1,045 GPD  
 DAILY DESIGN FLOW = 1,052 GPD  
**TOTAL DESIGN FLOW:**  
 TOTAL DESIGN FLOW = 810 GPD + 1,045 GPD  
 TOTAL DESIGN FLOW = 1,855 GPD

**LEACHING REQUIREMENTS:**

PERC. RATE: <2 MIN./IN.  
 CLASS I SOIL - LOADING RATE= 0.74 GPD/SF  
 LEACHING TRENCH CONFIGURATION - 85' LONG  
 2' DEEP  
 2' WIDE  
 SIDE AREA = (2) x 2' x 85' = 340 s.f.  
 340 s.f. x 0.74 = 251 GPD  
 BOT. AREA = (1) x 2' x 85' = 170 s.f.  
 170 s.f. x 0.74 = 125 GPD  
 CAPACITY PER TRENCH = 376 GPD  
 USE 5 TRENCHES = 1,880 GPD > 1,855 GPD

**SEPTIC TANK:**

TWO COMPARTMENT SEPTIC TANK WITH 72 HOUR STORAGE CAPACITY  
 USE 6,000 GAL. SEPTIC TANK.

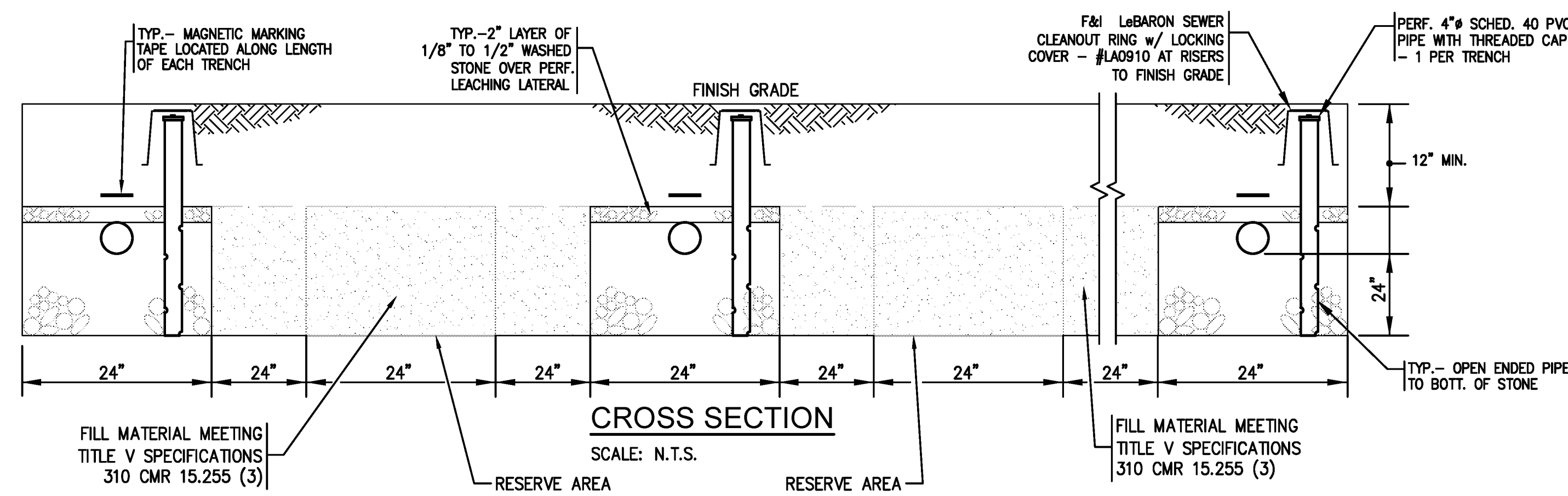
**SEPTIC SYSTEM GENERAL NOTES:**

- THE SANITARY SEWAGE DISPOSAL SYSTEM SHOWN SHALL BE INSTALLED IN ACCORDANCE WITH THE COMMONWEALTH OF MASSACHUSETTS STATE ENVIRONMENTAL CODE 310 CMR 15.00 (TITLE V) AND ANY LOCAL BOARD OF HEALTH REGULATIONS.
- PRIOR TO START OF CONSTRUCTION, UNLESS SPECIFICALLY EXCLUDED BY THE B.O.H. AGENT, THE SYSTEM INSTALLER SHALL MEET WITH THE B.O.H. AGENT FOR A PRE-CONSTRUCTION MEETING IN ORDER TO ESTABLISH THE PROCEDURES BY WHICH THE SYSTEM INSTALLER SHALL ASSURE THAT THE CONSTRUCTION COMPLIES WITH ALL OF THE REQUIREMENTS OF TITLE V & THE LOCAL B.O.H. RES.
- ANY MODIFICATION TO THE WORK SHALL BE APPROVED IN WRITING BY THE ARCHITECT/ENGINEER AND THE LOCAL BOARD OF HEALTH PRIOR TO PERFORMANCE.
- SOIL LOGS ARE INDICATIVE OF CONDITIONS ENCOUNTERED AT THE TIME & LOCATION OF TEST ONLY.
- UNSATURABLE MATERIAL IN THE DISPOSAL AREA SHALL BE REMOVED & REPLACED WITH MATERIAL TO THE LIMITS SHOWN HEREIN. EXCAVATION & NEW MATERIAL SHALL BE APPROVED BY THE ENGINEER & LOCAL BOARD OF HEALTH. FILL MATERIAL SHALL MEET THE GRADATION REQUIREMENTS OF 310 CMR 15.255(3).
- STONE SHALL BE OF SIZES SHOWN, TRIPLE WASHED, AND HAVE LESS THAN 0.2% MATERIAL FINER THAN #200 SIEVE WHEN IN PLACE, & TESTED IN ACCORDANCE WITH A.A.S.H.T.O. #1-11 & T-27.
- SEWER PIPING AND FITTINGS SHALL BE ASTM D-1785 AND D-2466 SCHEDULE 40 PVC. SOLVENT CEMENTED JOINTS SHALL MEET THE REQUIREMENTS OF ASTM D-2564.
- SEPTIC TANK & PUMP CHAMBER SHALL BE H-20 DESIGN REINFORCED CONCRETE PRECAST MANUFACTURED BY ROTONDO PRECAST OR APPROVED EQUAL.
- SYSTEM IS NOT DESIGNED FOR USE WITH GARBAGE GRINDER.
- NOTIFY LOCAL BOARD OF HEALTH AND ARCHITECT/ENGINEER WHEN SYSTEM IS COMPLETED AND READY FOR INSPECTION PRIOR TO BACKFILL.
- NO HEAVY CONSTRUCTION EQUIPMENT SHALL BE RUN OVER THE COMPONENTS OR THE PREPARED SEWAGE DISPOSAL SYSTEM. CONTRACTOR TO FURNISH AND INSTALL STAKED ORANGE SAFETY FENCING AROUND SYSTEM.
- PRIOR TO ANY EXCAVATION, IN ADDITION TO "BIG SAFE", NOTIFY APPROPRIATE UTILITY COMPANY OR AUTHORITY TO VERIFY EXACT DEPTH AND LOCATIONS OF UNDERGROUND UTILITIES. LOCATIONS OF UTILITIES SHOWN ARE APPROXIMATE ONLY AND THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE AND PROTECT PROTECT UTILITIES IN THE FIELD WHETHER OR NOT SHOWN ON THE DRAWINGS.
- IN THE COURSE OF INSTALLING THE LEACHING FACILITY, REMOVE ANY ABANDONED FOUNDATION, UTILITY STRUCTURES, ETC. ENCOUNTERED WHICH INTERFERE WITH THE LEACHING FACILITY. ALL SUCH STRUCTURES SHALL BE COMPLETELY REMOVED AND SHALL BE REPLACED WITH FILL MEETING TITLE V CRITERIA.
- THE ENGINEER WILL INSPECT THE BOTTOM OF UNSATURABLE MATERIAL EXCAVATION AND THE INSTALLATION OF THE FIELD PRIOR TO BACKFILL. THE CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE ENGINEER 72 HOURS PRIOR TO TIME OF EACH INSPECTION.

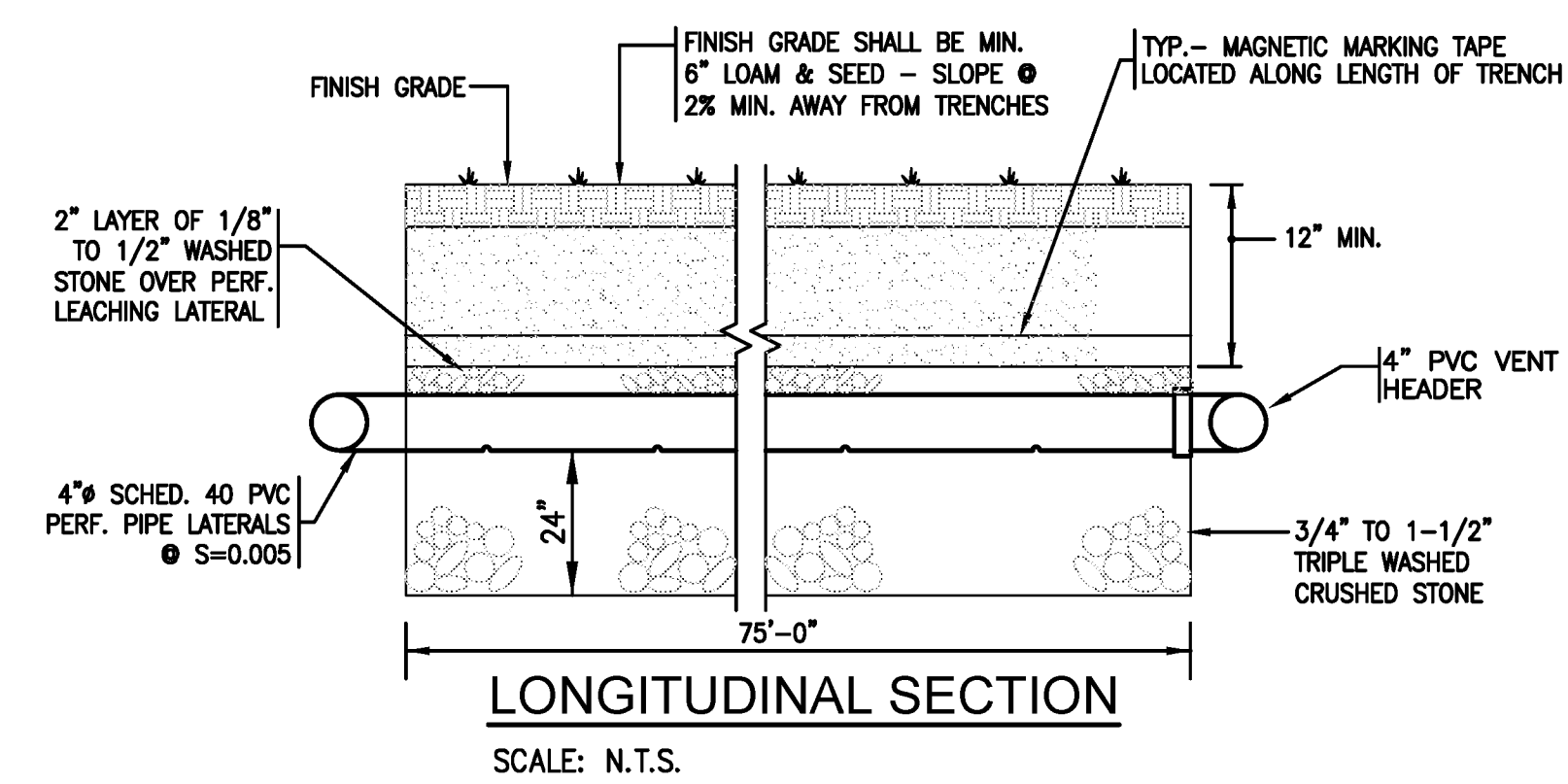
**SEPTIC TANK TESTING NOTES:**

1. SEPTIC TANK SHALL BE TESTED FOR WATER TIGHTNESS AFTER INSTALLATION. TEST SHALL BE PERFORMED IN THE PRESENCE OF THE DESIGN ENGINEER & LOCAL HEALTH AGENT. TEST PROCEDURE SHALL CONSIST OF THE FOLLOWING:

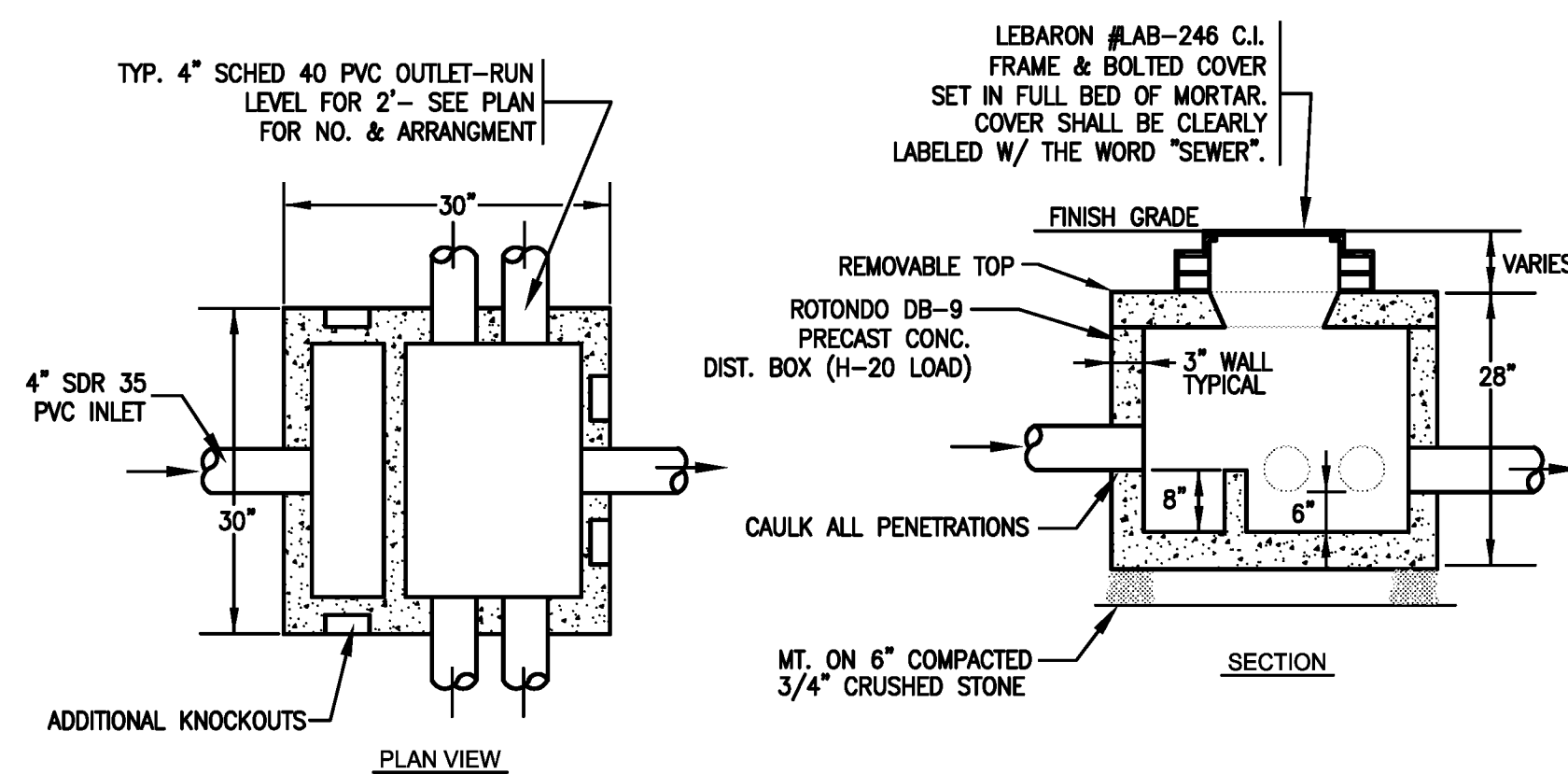
- CONTRACTOR SHALL PLUG INLET AND OUTLET OF SEPTIC TANK.
- CONTRACTOR SHALL FILL SEPTIC TANK WITH WATER TO THE UNDERSIDE OF THE TOP SLAB. TANK SHALL REMAIN FILLED FOR A PERIOD OF 48 HOURS.
- WATER LEVEL SHALL BE MEASURED AT THE END OF THE 48-HOUR PERIOD. WATER LEVEL IS INTENDED TO BE MAINTAINED WITHOUT ANY DROP.
- THE DESIGN ENGINEER AND BOARD OF HEALTH AGENT SHALL MAKE DETERMINATION FOR THE NEED OF ANY FURTHER REMEDIAL WORK.



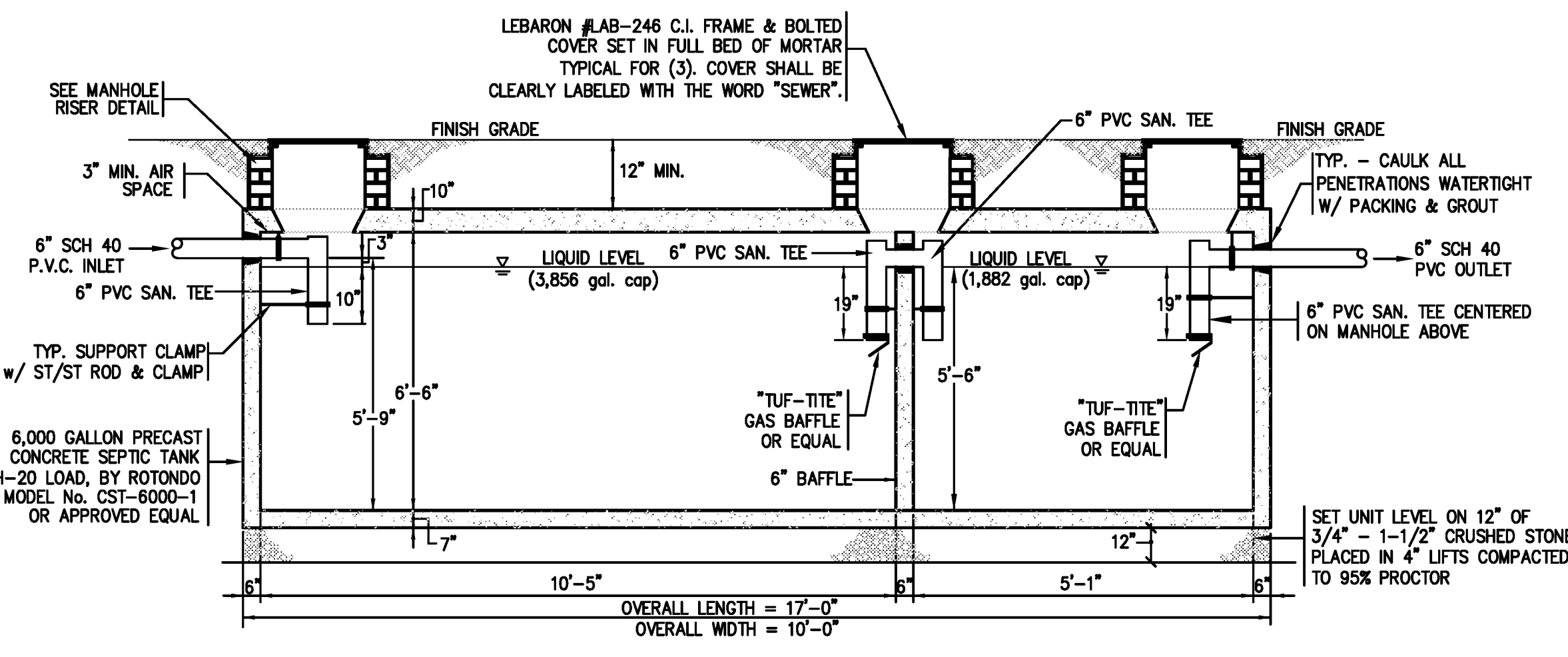
**1 LEACHING TRENCH CROSS SECTION**  
 SCALE: N.T.S.



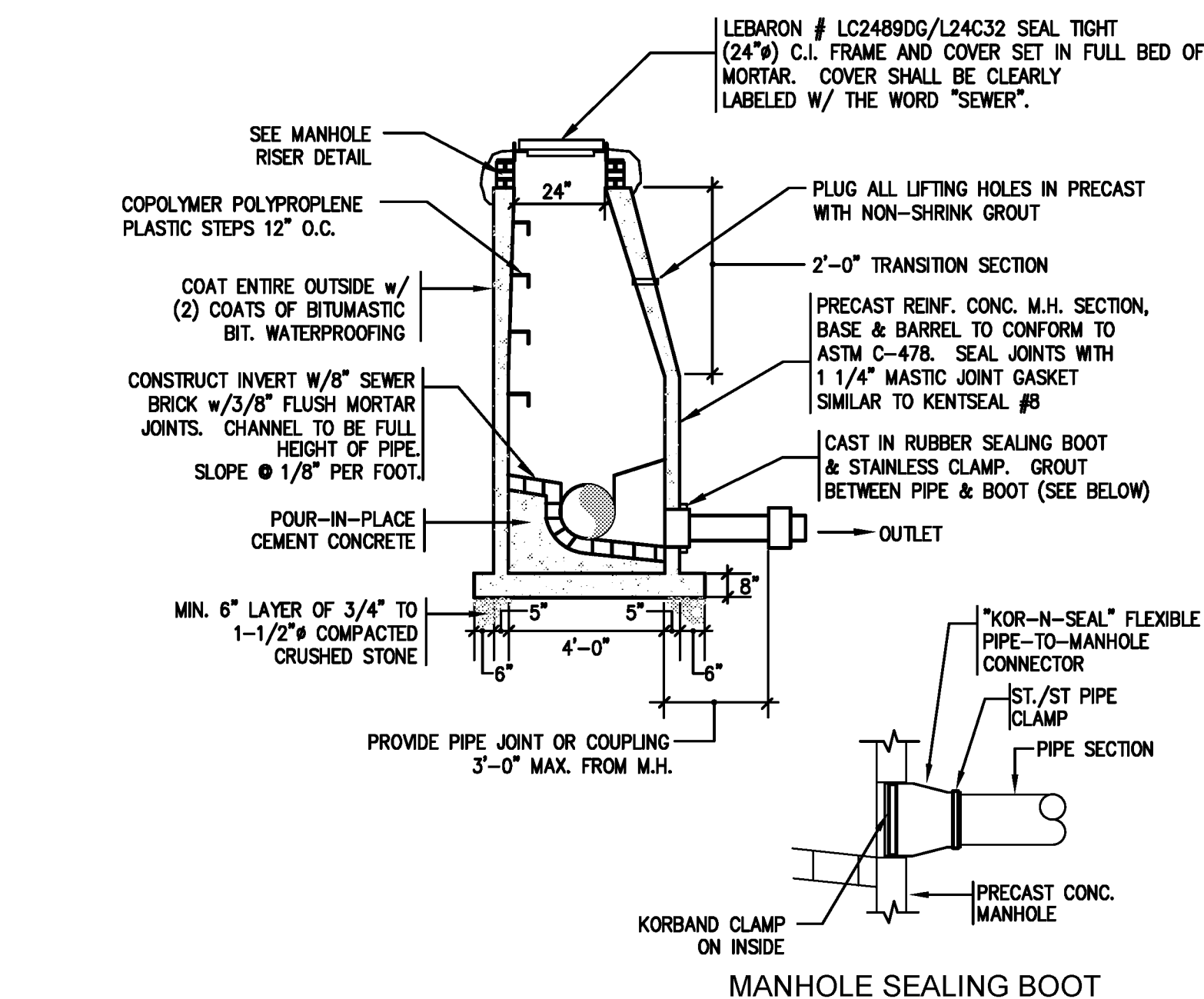
**LONGITUDINAL SECTION**  
 SCALE: N.T.S.



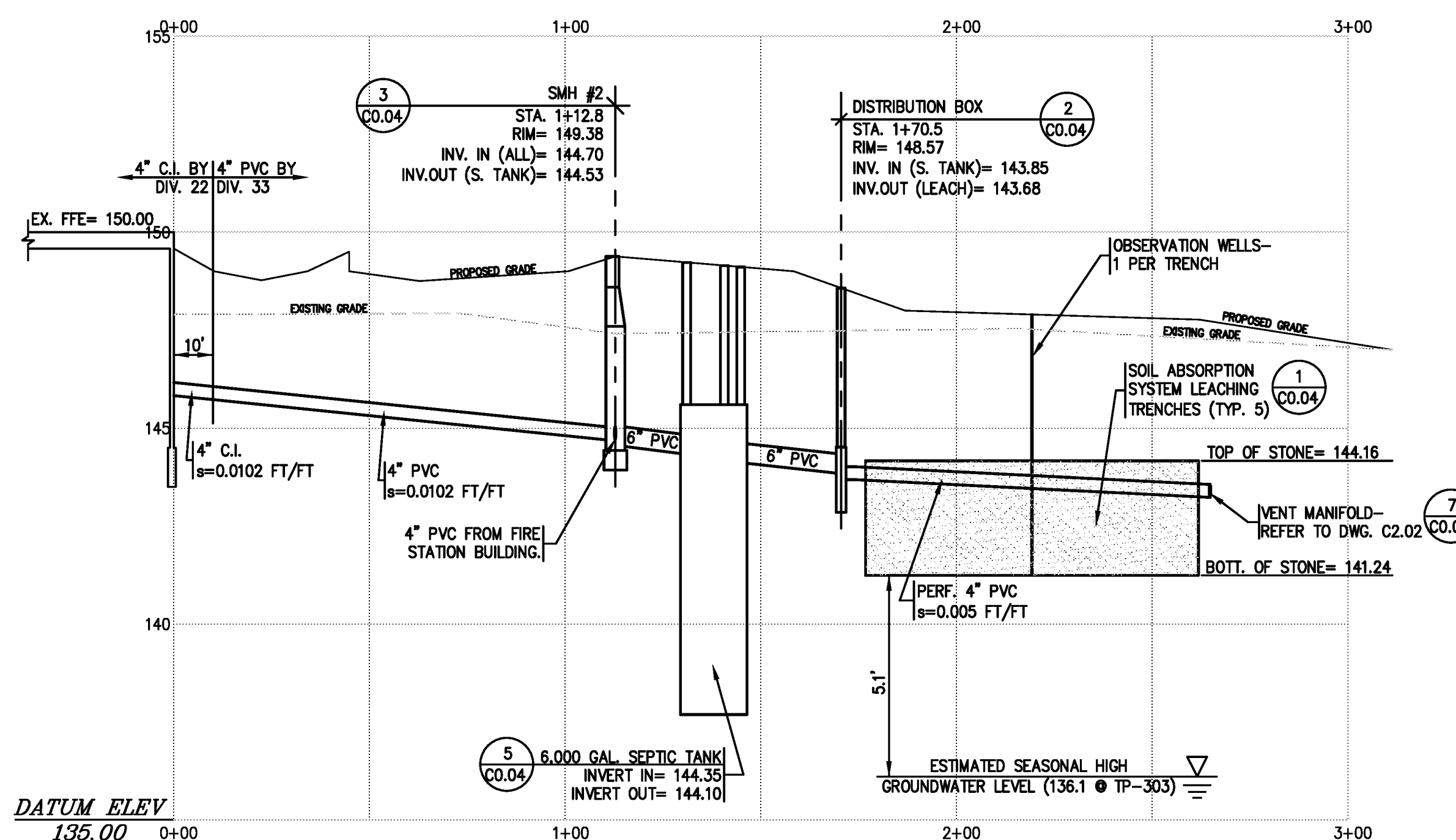
**2 DETAIL OF DISTRIBUTION BOX**  
 N.T.S.



**3 SEPTIC TANK DETAIL (6,000 GAL. CAP.)**  
 N.T.S.



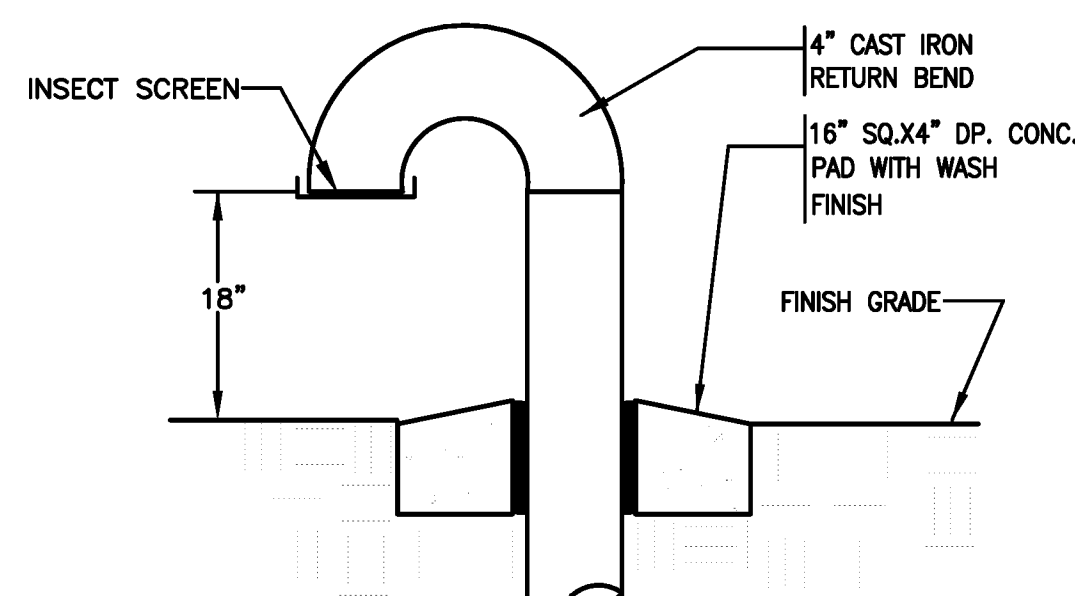
**4 STANDARD SEWER MANHOLE DETAIL**  
 N.T.S.



**5 PROFILE OF SUBSURFACE SEPTIC DISPOSAL SYSTEM**  
 HORIZONTAL SCALE: 1" = 30'  
 VERTICAL SCALE: 1" = 3'

TOP OF FOUND. = 150.00 (PD)/149.80 (FD)	INV IN TANK = 144.35	BOT. OF TRENCH = 141.24
INV AT BUILD = VARIES	INV OUT TANK = 144.10	WATER = >136.1
FIN. GR AT FOUND. = VARIES	INV IN D-BOX = 143.85	
	INV OUT D-BOX = 144.68	

IP #301	IP #302	IP #303	IP #304
0" FOREST MAT (0) EL=147.3	0" FOREST MAT (0) EL=147.2	0" FOREST MAT (0) EL=147.6	0" FOREST MAT (0) EL=147.4
2" SANDY LOAM (10YR 3/2) EL=147.1	1" SANDY LOAM (10YR 2/2) EL=147.1	2" SANDY LOAM (10YR 2/2) EL=147.5	2" SANDY LOAM (10YR 2/2) EL=147.2
8" LOAM SAND (10YR 5/6) EL=146.6	5" LOAM SAND (10YR 5/6) EL=146.8	6" LOAM SAND (10YR 5/6) EL=147.1	8" LOAM SAND (10YR 5/6) EL=146.7
16" SILTY SAND (10YR 6/8) EL=146.0	13" SILTY SAND (10YR 6/4) EL=146.1	14" SILTY SAND (10YR 6/8) EL=146.4	20" SILTY SAND (10YR 6/8) EL=145.7
35" SAND (10YR 5/6) EL=144.4	45" SAND (10YR 5/4) EL=143.5	37" SAND (10YR 4/6) EL=144.5	46" SAND W/ SILT (10YR 5/4) EL=143.6
138" EL=135.8	150" EL=134.7	138" EL=136.1	140" EL=135.7

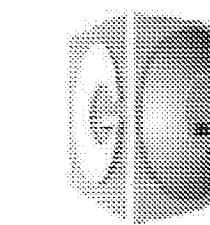


**6 VENT DETAIL**  
 N.T.S.

**7 POLICE-FIRE STATION SOILS LOG**

- NOTES:  
 1. TEST PITS #301 THRU #304 WERE PERFORMED ON APRIL 3, 2017 BY NATHAN C. KETCHEL, EIT (SE12894) & OBSERVED BY DARREN M. MEYER, RS OF THE SANDWICH BOARD OF HEALTH.  
 2. ESTIMATED GROUNDWATER ELEVATIONS ARE BASED ON UTILIZING THE CAPE COD COMMISSION TECHNICAL BULLETIN 92-001: ESTIMATION OF HIGH GROUND-WATER LEVELS FOR CONSTRUCTION AND LAND USE PLANNING, UPDATED 1991, REVISED 2006 UTILIZING WELL SDW-252 IN ZONE A WITH WELL READINGS FROM FEBRUARY 2017.

416 Slater Road, P.O. Box 2560, New Britain, CT 06050-2560  
 Phone: 860-229-0361 A Fax: 860-229-5303  
 325 Foxborough Boulevard, Suite 100, Foxborough, MA 02035  
 Phone: 508-549-9906 A Fax: 508-549-9907  
 Email: kba@kba-architects.com A Web: www.kba-architects.com



**GARCIA GALUSKA DESOUSA**  
 CONSULTING ENGINEERS, INC.  
 370 Palmer Corner Road, Dartmouth, MA 02747 - 1271  
 508-598-0700 FAX: 508-598-0983 E-MAIL: info@g-g-e.com

**ISSUE DATE**

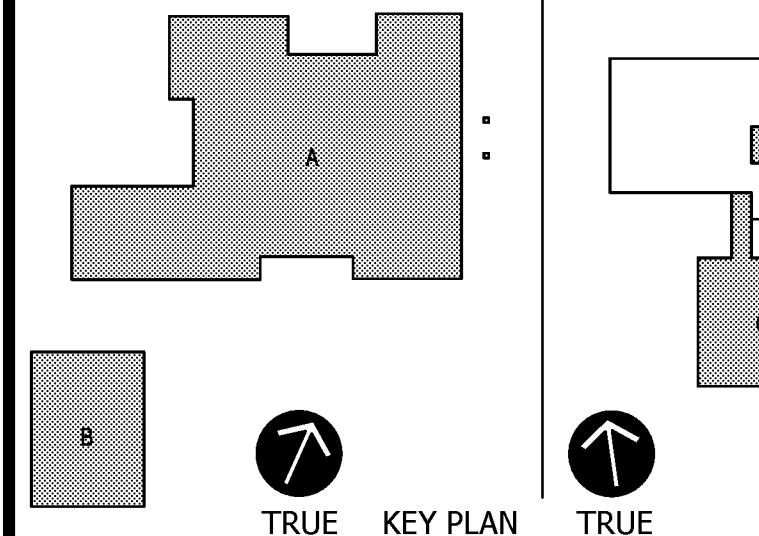
DATE	DESCRIPTION
05/03/2017	ISSUED FOR BID & CONSTRUCTION

**REVISIONS**

DATE	REVISIONS DESCRIPTION
------	-----------------------

FOR ALL ABBREVIATIONS, SYMBOL LEGENDS, AND GENERAL NOTES SEE SHEET R0.01

**CONCEPTUAL**



SCALE: AS NOTED



**SANDWICH PUBLIC SAFETY COMPLEX & FIRE SUB STATION #2**

251 COTUIT RD - 255 COTUIT RD - 466 ROUTE 6A  
 EAST SANDWICH, MA 02537

PROJECT NO.: 11046.08 DRAWN BY: NCK

**SITE SEPTIC DETAILS - PUBLIC SAFETY COMPLEX**

DRAWING NO.:

**C0.04**



**SEPTIC SYSTEM BASIS OF DESIGN**

**DAILY SEWAGE FLOW:**

USE: MUNICIPAL FIRE SUB STATION  
 3 BEDROOMS AT 110 GPD/BEDROOM = 330 GPD  
 OFFICE SPACE: 200 SF x 75 GPD/1,000 SF = 15 GPD  
 DAILY DESIGN FLOW = 345 GPD

**LEACHING REQUIREMENTS:**

PERC. RATE: <2 MIN./IN.  
 CLASS 1 SOIL - LOADING RATE = 0.74 GPD/S.F.  
 LEACHING AREA CONFIGURATION - 32'(L) x 12'(W) x 2' (DP)  
 BOTT. AREA = 32' x 12' = 384 S.F.  
 384 S.F. x 0.74 = 284 GPD  
 SIDE AREA = 2' x (2)(32' + 12') = 176 S.F.  
 176 S.F. x 0.74 = 130 GPD  
 CAPACITY OF GALLEY = 404 GPD > 345 GPD

**SEPTIC TANK:**

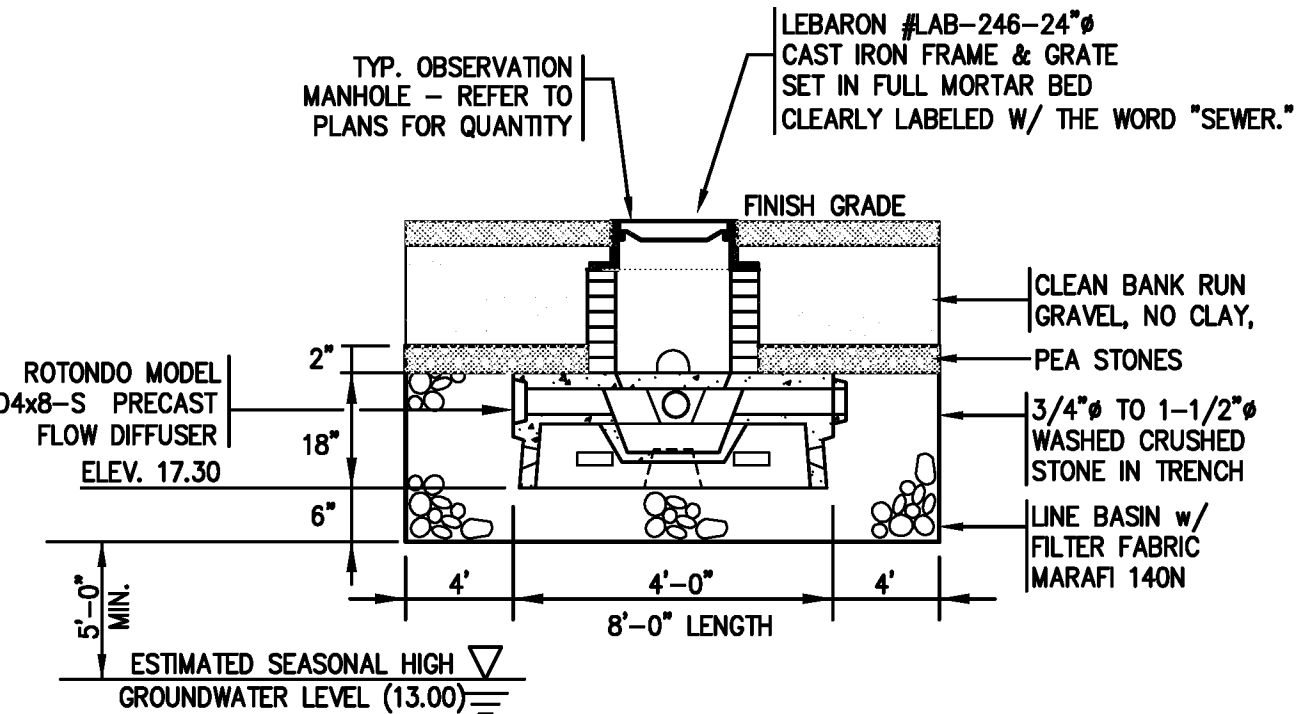
TWO COMPARTMENT SEPTIC TANK WITH 72 HOUR STORAGE CAPACITY  
 USE 1,500 GAL. SEPTIC TANK.

**SEPTIC SYSTEM GENERAL NOTES:**

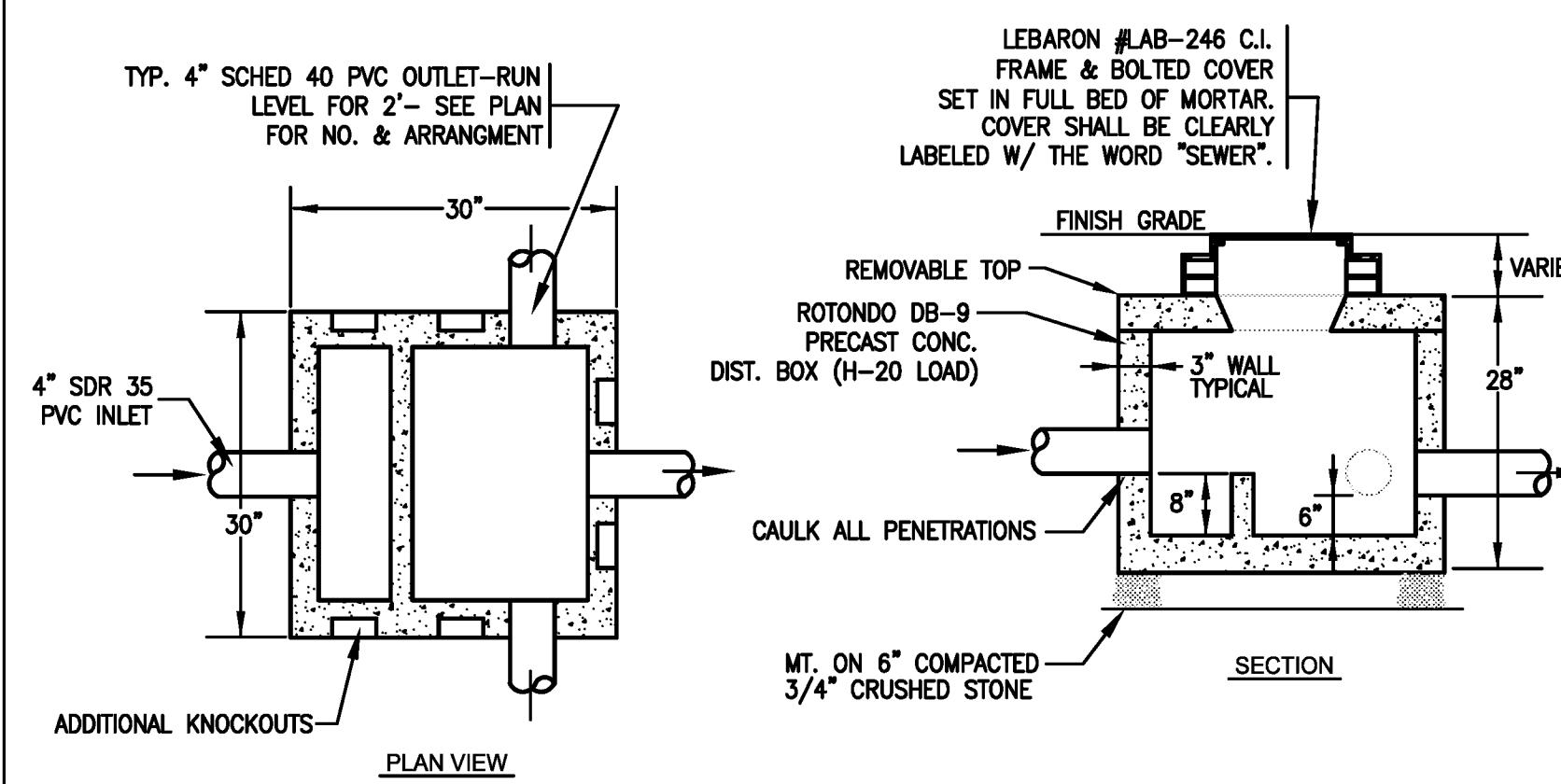
- THE SANITARY SEWAGE DISPOSAL SYSTEM SHOWN SHALL BE INSTALLED IN ACCORDANCE WITH THE COMMONWEALTH OF MASSACHUSETTS, STATE ENVIRONMENTAL CODE 310 CMR 15.00 (TITLE V) AND ANY LOCAL BOARD OF HEALTH REGULATIONS.
- PRIOR TO START OF CONSTRUCTION, UNLESS SPECIFICALLY EXCUSED BY THE B.O.H. AGENT, THE SYSTEM INSTALLER SHALL MEET WITH THE B.O.H. AGENT FOR A PRE-CONSTRUCTION MEETING IN ORDER TO ESTABLISH THE PROCEDURES BY WHICH THE SYSTEM INSTALLER SHALL ASSURE THAT THE CONSTRUCTION COMPLIES WITH ALL OF THE REQUIREMENTS OF TITLE V AND THE LOCAL B.O.H. REGS.
- ANY MODIFICATION TO THE WORK SHALL BE APPROVED IN WRITING BY THE ARCHITECT/ENGINEER AND THE LOCAL BOARD OF HEALTH PRIOR TO PERFORMANCE.
- SOIL LOGS ARE INDICATIVE OF CONDITIONS ENCOUNTERED AT THE TIME & LOCATION OF TEST ONLY.
- UNSATURABLE MATERIAL IN THE DISPOSAL AREA SHALL BE REMOVED & REPLACED WITH MATERIAL TO THE LIMITS SHOWN HEREIN. EXCAVATION & NEW MATERIAL SHALL BE APPROVED BY THE ENGINEER & LOCAL BOARD OF HEALTH. FILL MATERIAL SHALL MEET THE GRADATION REQUIREMENTS OF 310 CMR 15.25(3).
- STONE SHALL BE OF SIZES SHOWN, TRIPLE WASHED, AND HAVE LESS THAN 0.2% MATERIAL FINER THAN #200 SIEVE WHEN IN PLACE, & TESTED IN ACCORDANCE WITH A.A.S.H.T.O. #1-11 & T-27.
- SEWER PIPING AND FITTINGS SHALL BE ASTM D-1785 AND D-2466 SCHEDULE 40 PVC. SOLVENT CEMENTED JOINTS SHALL MEET THE REQUIREMENTS OF ASTM D-2564.
- SEPTIC TANK & PUMP CHAMBER SHALL BE H-20 DESIGN REINFORCED CONCRETE PRECAST MANUFACTURED BY ROTONDO PRECAST OR APPROVED EQUAL.
- SYSTEM IS NOT DESIGNED FOR USE WITH GARBAGE GRINDER.
- NOTIFY LOCAL BOARD OF HEALTH AND ARCHITECT/ENGINEER WHEN SYSTEM IS COMPLETED AND READY FOR INSPECTION PRIOR TO BACKFILL.
- NO HEAVY CONSTRUCTION EQUIPMENT SHALL BE RUN OVER THE COMPONENTS OR THE PREPARED SEWAGE DISPOSAL SYSTEM. CONTRACTOR TO FURNISH AND INSTALL STAKED ORANGE SAFETY FENCING AROUND SYSTEM.
- PRIOR TO ANY EXCAVATION, IN ADDITION TO "DIG SAFE", NOTIFY APPROPRIATE UTILITY COMPANY OR AUTHORITY TO VERIFY EXACT DEPTH AND LOCATIONS OF UNDERGROUND UTILITIES. LOCATIONS OF UTILITIES SHOWN ARE APPROXIMATE ONLY AND THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE AND PROTECT PROTECT UTILITIES IN THE FIELD WHETHER OR NOT SHOWN ON THE DRAWINGS.
- IN THE COURSE OF INSTALLING THE LEACHING FACILITY, REMOVE ANY ABANDONED FOUNDATION, UTILITY STRUCTURES, ETC. ENCOUNTERED WHICH INTERFERE WITH THE LEACHING FACILITY. ALL SUCH STRUCTURES SHALL BE COMPLETELY REMOVED AND SHALL BE REPLACED WITH FILL MEETING TITLE V CRITERIA.
- THE ENGINEER WILL INSPECT THE BOTTOM OF UNSATURABLE MATERIAL EXCAVATION AND THE INSTALLATION OF THE FIELD PRIOR TO BACKFILL. THE CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE ENGINEER 72 HOURS PRIOR TO TIME OF EACH INSPECTION.

**SEPTIC TANK TESTING NOTES:**

- SEPTIC TANK SHALL BE TESTED FOR WATER TIGHTNESS AFTER INSTALLATION. TEST SHALL BE PERFORMED IN THE PRESENCE OF THE DESIGN ENGINEER & LOCAL HEALTH AGENT. TEST PROCEDURE SHALL CONSIST OF THE FOLLOWING:
  - CONTRACTOR SHALL PLUG INLET AND OUTLET OF SEPTIC TANK.
  - CONTRACTOR SHALL FILL SEPTIC TANK WITH WATER TO THE UNDERSIDE OF THE TOP SLAB. TANK SHALL REMAIN FILLED FOR A PERIOD OF 48 HOURS.
  - WATER LEVEL SHALL BE MEASURED AT THE END OF THE 48-HOUR PERIOD. WATER LEVEL IS INTENDED TO BE MAINTAINED WITHOUT ANY DROP.
  - THE DESIGN ENGINEER AND BOARD OF HEALTH AGENT SHALL MAKE DETERMINATION FOR THE NEED OF ANY FURTHER REMEDIAL WORK.

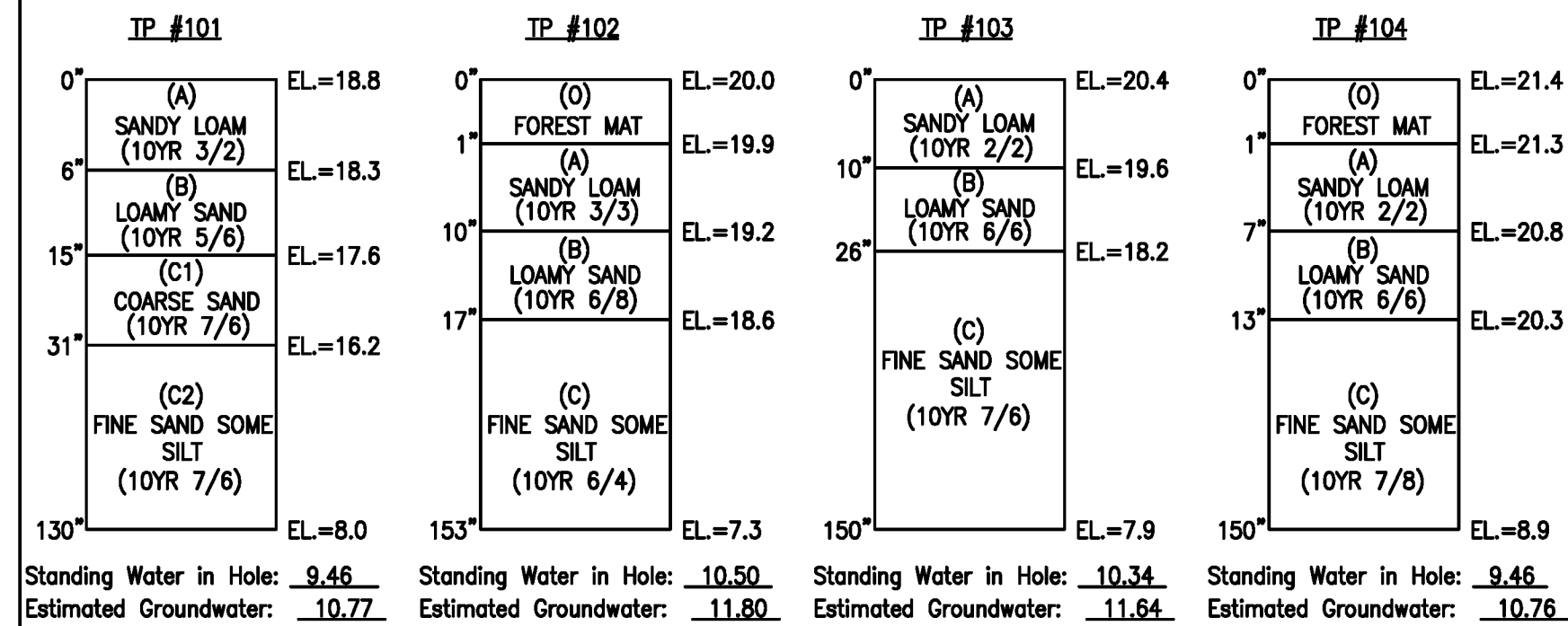


1 SEPTIC FLOW DIFFUSER DETAIL  
 CO.05 N.T.S.

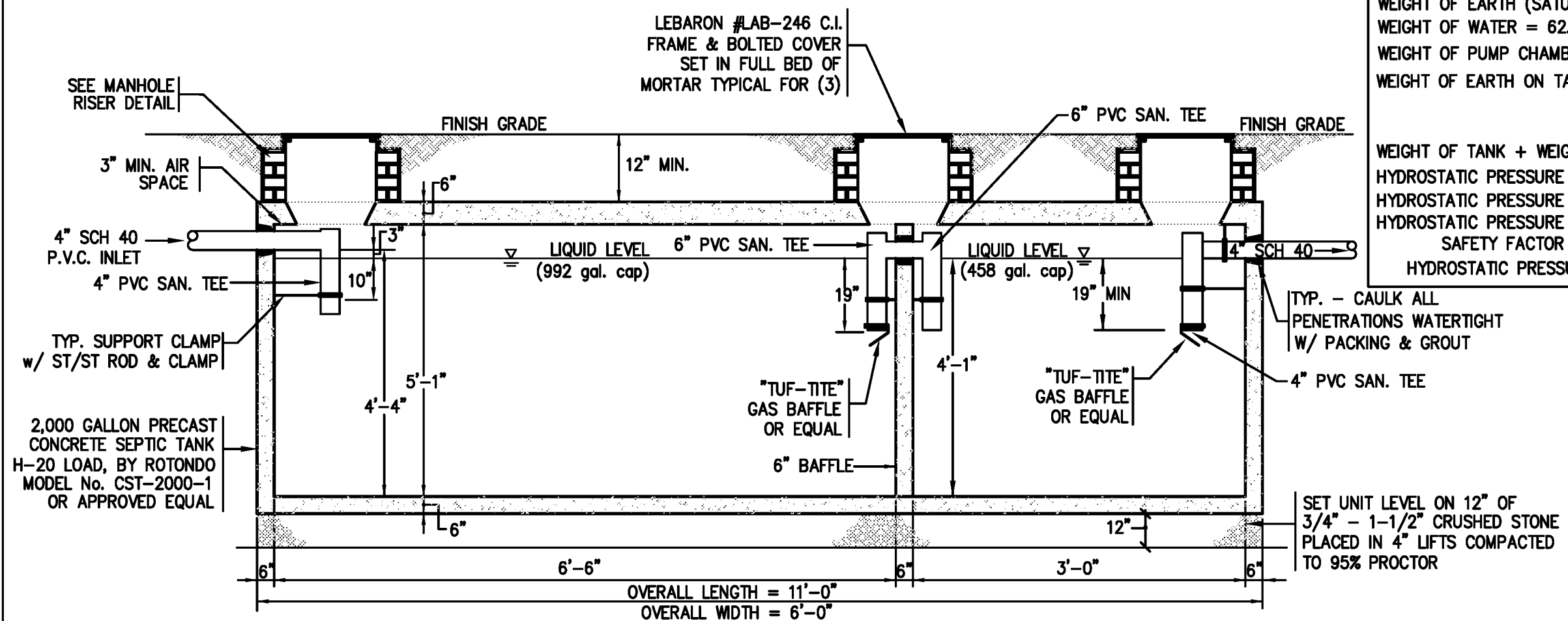


4 DETAIL OF DISTRIBUTION BOX  
 CO.05 N.T.S.

7 BLANK  
 CO.05 N.T.S.



2 FIRE SUB STATION #2 SOILS LOG  
 CO.05



5 TYPICAL SEPTIC TANK DETAIL (1,500 GAL. CAP.)  
 CO.05 N.T.S.

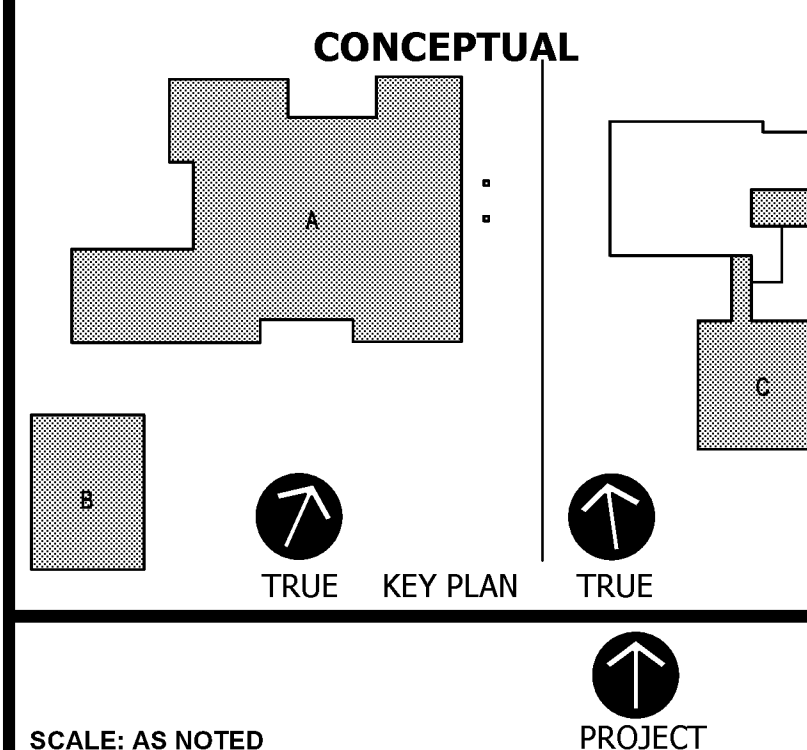
**BUOYANCY CALCULATIONS FOR 1,500 GALLON PRECAST CONC. SEPTIC**

**WEIGHT OF MATERIALS:**  
 WEIGHT OF CONCRETE = 150 pcf  
 WEIGHT OF EARTH = 110 pcf  
 WEIGHT OF EARTH (SATURATED) = 47 pcf  
 WEIGHT OF WATER = 62.4 pcf  
 WEIGHT OF PUMP CHAMBER (EMPTY) = 22,200 lbs.  
 WEIGHT OF EARTH ON TANK = (LENGTH x WIDTH x EARTH COVER(WT. OF EARTH)) + (6'x11'x1.25'x47 pcf) + (6'x11'x2.49'x110 pcf) = 21,954 lbs.  
 WEIGHT OF TANK + WEIGHT OF EARTH = 44,154 lbs.  
 HYDROSTATIC PRESSURE = (LENGTH x WIDTH x HEIGHT OF WATER IN TANK)(WEIGHT OF WATER)  
 HYDROSTATIC PRESSURE = (5'x10'x5.1')(62.4 pcf)  
 HYDROSTATIC PRESSURE = 15,912 lbs.  
 SAFETY FACTOR = 44,154 lbs./15,912 lbs. = 2.77:1  
 HYDROSTATIC PRESSURE < WEIGHT OF TANK + WEIGHT OF EARTH (OK)

DATE	ISSUE DATE	DESCRIPTION
05/03/2017		ISSUED FOR BID & CONSTRUCTION

DATE	REVISIONS	DESCRIPTION
------	-----------	-------------

FOR ALL ABBREVIATIONS, SYMBOL LEGENDS, AND GENERAL NOTES SEE SHEET R0.01

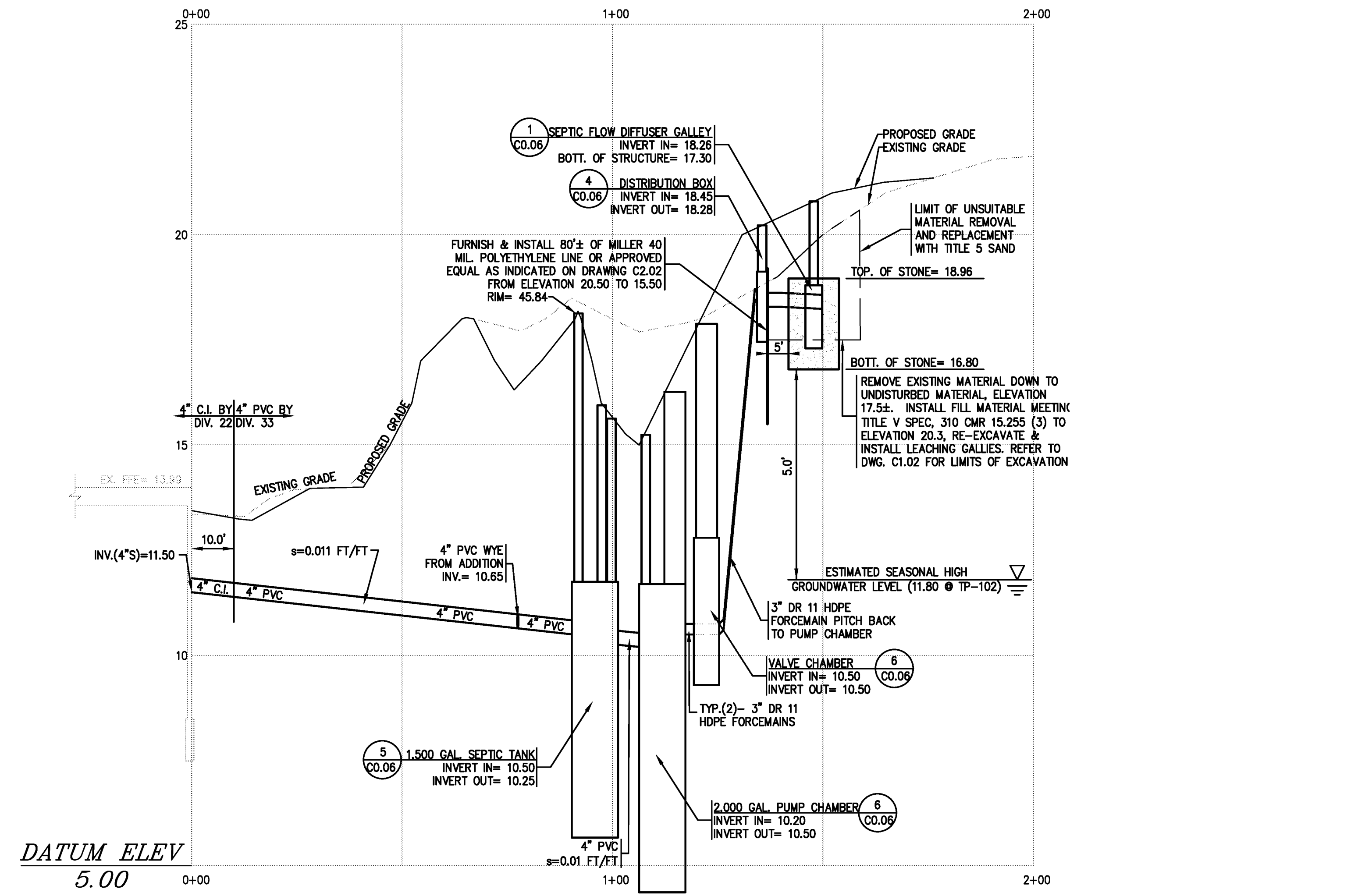


**SANDWICH PUBLIC SAFETY COMPLEX & FIRE SUB STATION #2**  
 251 COTUIT RD - 255 COTUIT RD - 466 ROUTE 6A  
 EAST SANDWICH, MA 02537

PROJECT NO.: 11046.08 DRAWN BY: NCK

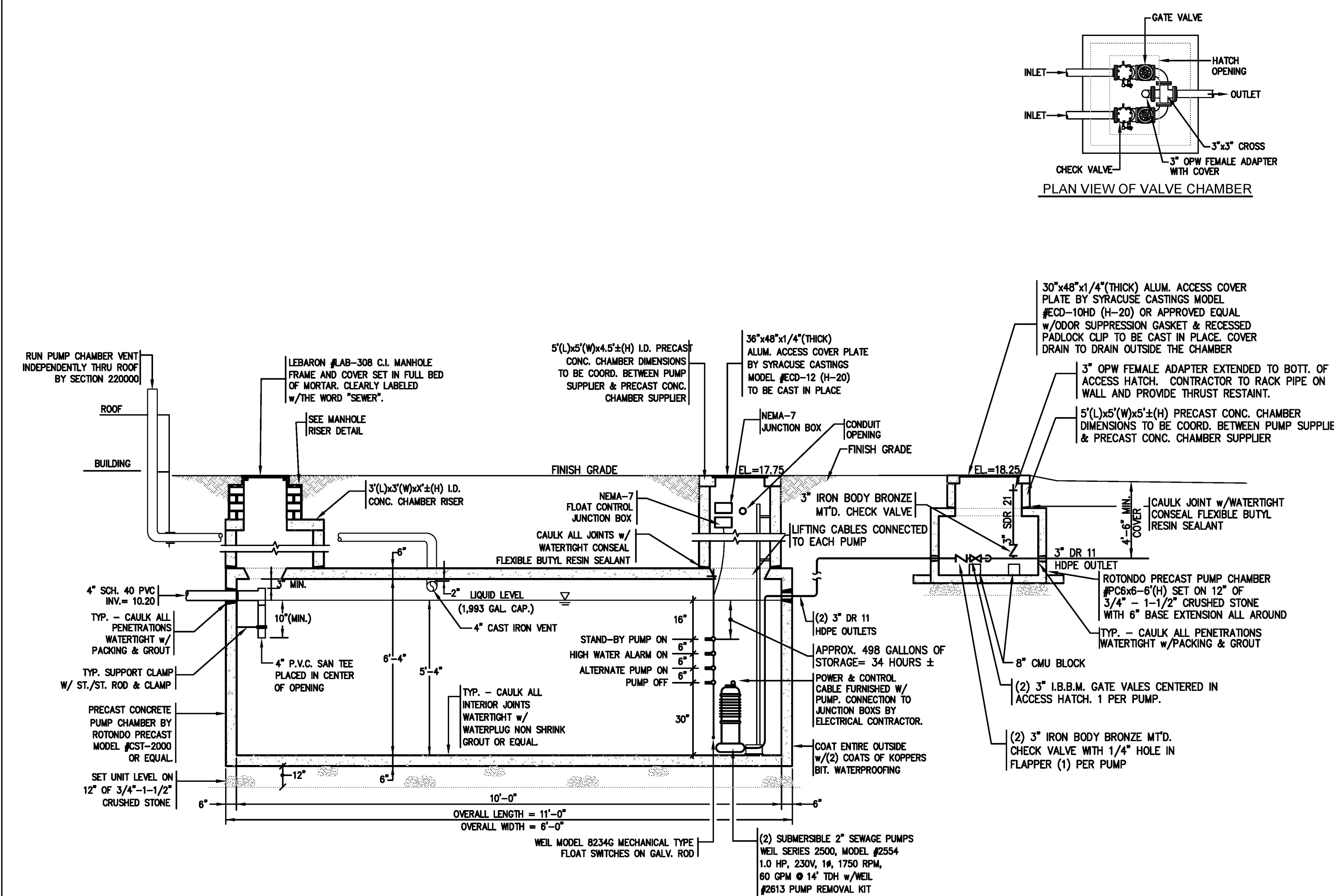
**SITE SEPTIC DETAILS - FIRE SUB STATION #2**

DRAWING NO.: **CO.05**



3 PROFILE OF SUBSURFACE SEPTIC DISPOSAL SYSTEM  
 CO.05 HORIZONTAL SCALE: 1"=20' VERTICAL SCALE: 1"=2'

TOP OF FOUND. = 13.99	INV IN (SEPTIC TANK) = 10.50	INV IN D-BOX = 18.45
INV AT BUILD = 11.50	INV OUT (SEPTIC TANK) = 10.25	INV OUT D-BOX = 18.28
FIN. GR AT FOUND. = 13.42	INV IN (PUMP CHAMBER) = 10.20	BOT. OF BED = 16.80
	INV OUT (PUMP CHAMBER) = 10.50	WATER = 11.80



6 TYPICAL PUMP CHAMBER DETAIL (2,000 GAL. CAP.)  
 CO.05 N.T.S.

**BUOYANCY CALCULATIONS FOR 2,000 GALLON PRECAST CONC. PUMP CHAMBER**

**WEIGHT OF MATERIALS:**  
 WEIGHT OF CONCRETE = 150 pcf  
 WEIGHT OF EARTH = 110 pcf  
 WEIGHT OF EARTH (SATURATED) = 47 pcf  
 WEIGHT OF WATER = 62.4 pcf  
 WEIGHT OF PUMP CHAMBER (EMPTY) = 25,200 lbs.  
 WEIGHT OF EARTH ON TANK = (LENGTH x WIDTH x EARTH COVER(WT. OF EARTH)) + (6'x11'x1.25'x47 pcf) + (6'x11'x2.2'x110 pcf) = 18,397 lbs.  
 WEIGHT OF TANK + WEIGHT OF EARTH = 43,597 lbs.  
 HYDROSTATIC PRESSURE = (LENGTH x WIDTH x HEIGHT OF WATER IN TANK)(WEIGHT OF WATER)  
 HYDROSTATIC PRESSURE = (5'x10'x6.4')(62.4 pcf)  
 HYDROSTATIC PRESSURE = 19,968 lbs.  
 SAFETY FACTOR = 43,597 lbs./19,968 lbs. = 2.18:1  
 HYDROSTATIC PRESSURE < WEIGHT OF TANK + WEIGHT OF EARTH (OK)