



WEAVER GENERAL CONSTRUCTION COMPANY
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SUBMITTAL TRANSMITTAL

June 29, 2011

WGC Submittal No: 03300-015

PROJECT: Harold Thompson Regional WRF
Birdsall Rd.
Fountain, CO 80817
Job No. 2908

ENGINEER: GMS, Inc.
611 No. Weber St., #300
Colorado Springs, CO 80903
719-475-2935 Roger Sams

OWNER: Lower Fountain Metropolitan
Sewage Disposal District
901 S. Santa Fe Ave.
Fountain, CO 80817
719-382-5303 James Heckman

CONTRACTOR: Garney Companies Inc.
7911 Shaffer Parkway
Littleton, CO 80127
303-791-3600 Dennis Van Auken

SUBJECT: HDT Clarifier #2 Sump Modification

- Modification Procedure / Drawing / Detail
- Product Data
 - Hilti Adhesive - Hit HY 150 MAX
 - Sika Armatec 110 EpoCem - Bonding Agent
 - SikaSet Mortar - Rapid setting Patching Compound


SPEC SECTION: 03300-Cast-In-Place Concrete
HDT Clarifier #2 Sump Modification.

PREVIOUS SUBMISSION DATES: None
DEVIATIONS FROM SPEC: ___ YES X NO

CONTRACTOR'S STAMP: This submittal has been reviewed by Weaver General Construction and approved with respect to the means, methods, techniques, & safety precautions & programs incidental thereto. Weaver General Construction also warrants that this submittal complies with contracted documents and comprises on deviations thereto:

Contractor's Stamp:

Engineer's Stamp:

Date: 06/29/11
Reviewed by: H.C. Myers 
(X) Reviewed Without Comments
() Reviewed With Comments

ENGINEER'S
COMMENTS: _____

Garney Construction, Inc.

7911 Shaffer Parkway
Littleton, CO 80127

SUBMITTAL

NO. 00011

Phone: 303-791-3600
Fax: 303-791-1801

Title: Clarifier 2 Sump Repair Method

DATE: 6-29-11

PROJECT: Harold D. Thompson

JOB: 6591

TO: Jeff Burst with Weaver Construction

REQUEST:

Attached literature for Clarifier 2 Sump Modification

Date: 6-29-11

Signed: Dennis VanAuken

Answered By: _____ **Date:** _____ **Signed:** _____



100% Employee Owned

~~Harold D. Thompson WRF - Fountain CO~~

~~HDT Clarifier # 2 Sump Modification~~

The following procedures will take place for the repair of Clarifier Sump.

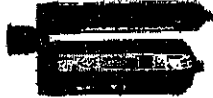
- . Remove approximately 3" x 1' of concrete to create a solid edge.
- . Roughen the remaining area to create a solid bond.
- . Drill and epoxy # 4 horizontal dowels 6" depth equally spaced. ~~HIT HY150 MAX~~
- . Install vertical # 4 reinforcement equally spaced.
- . Install form work to correct south dimensions.
- . Install Sika Armetec 110 concrete bond material. ~~"Sika Armetec 110 Epo Cem"~~
- . Place Sika repair mortar to correct south dimensions. ~~"Sika Set Mortar"~~
- . Garney will as-built Clarifier # 2 Sump to contract drawings.
- . See drawing and product data attached.

Hilti USA:
(800) 879-8000

Hilti Adhesive

Home > Products > Find products by trade > Oil and Gas > General Construction > Anchoring Equipment
 HIT-HY 150 MAX Fast Cure Hybrid Adhesive

HIT HY 150 MAX 11.1 fl oz / 330 ml: Item No.: 00283548



Package quantity	1
Number of packages	1

Technical Data

Volume	330 ml
Number of mixers included	1
For Use With	Hilti HIT-V HAS Rebar HZA-R HIS
Anchor Type	Chemical anchor
Content per Can	330 ml
Mixer Types	RE-M
Mixer extension included	Yes
Base Materials	Concrete
Base Material Conditions	Dry Water-saturated Standing water (if water is removed completely)
Material composition	Hybrid adhesive mortar
Other Test Reports	NSF approval for drinking water EBMS and Warrington fire test reports Corrosion test
Shelf life	12 month(s)
Grease/dol	Yes
Base material temperature - range	-10 °C - 40 °C
Rebar diameter range	8 - 25 mm
Rod diameter range	8 mm - 30 mm
Approvals	ETA-08-0852 Opt. 1, ETA-08-0202 (ETA rebar), ICC ESR-2262 (AC308)
Installation Direction	floor, wall, overhead
Cleaning procedures	Manual cleaning (up to 20 mm borehole diameter and 10 times element diameter embedment) or compressed-air cleaning
Brush Types	Round steel brushes, HIT-RB
Compatibility-sleeves	No
Required Dispenser	MD 2000 MD 2500 ED 3500-A
Installation temperature - range	-10 °C - 40 °C
In-Service temperature - range	-40 °C - 120 °C
Storage and transportation temperature - range	5 °C - 25 °C
Package Contents	Includes 1 foil pack with 1 mixer and 3/8" filter tube per pack

See items related to this product

Go back to previous page

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Sika Armatec® 110 EpoCem®

Bonding Agent and Reinforcement Protection

Construction

Description	Sika Armatec 110 EpoCem is a 3-component, solvent-free, moisture-tolerant, epoxy-modified, cementitious product specifically formulated as a bonding agent and an anti-corrosion coating.
Where to Use	<ul style="list-style-type: none"> ■ As an anti-corrosion coating for reinforcing steel in concrete restoration. ■ As added protection to reinforcing steel in areas of thin concrete cover. ■ As a bonding agent for repairs to concrete and steel. ■ As a bonding agent for placing fresh, plastic concrete to existing hardened concrete.
Advantages	<ul style="list-style-type: none"> ■ Excellent adhesion to concrete and steel. ■ Acts as an effective barrier against penetration of water and chlorides. ■ Long open time - up to 16 hours. ■ Not a vapor barrier. ■ Can be used exterior on-grade. ■ Contains corrosion inhibitors. ■ Excellent bonding bridge for cement or epoxy based repair mortars. ■ High strength, unaffected by moisture when cured. ■ Spray, brush or roller application. ■ Non-flammable, solvent free.
Coverage	<p>Bonding agent: minimum (theoretical) on smooth, even substrate 80 sq. ft./gal. (=20 mils thickness). Coverage will vary depending on substrate profile and porosity.</p> <p>Reinforcement Protection: 40 sq. ft./gal. (=20 mils thickness) (2 coat application).</p>
Packaging	<p>3.5 gal. unit. (47.6 fl. oz. Comp. A + 122.1 fl. oz. Comp. B + 46.82 lb. Comp. C) Comp. A + B in carton, Comp. C in multi-wall bag.</p> <p>1.65 gal. unit. (22.7 fl. oz. A + 57.6 fl. oz. B + 4 bags @ 5.5 lb.) Factory-proportioned units in a pail.</p>

Typical Data (Material and curing conditions @ 73°F and 50% R.H.)

Shelf Life	1 year in original, unopened packaging.		
Storage	Store dry at 40°-95°F (4°-35°C). Condition material to 65°-75°F (18°-24°C) before using. If components A and B are frozen, discard. Protect Component C from humidity.		
Color	Concrete gray		
Density (Mixed)	125 lb./cu. ft. (2.0 kg.)		
Pot Life	Approximately 90 minutes		
Compressive Strength (ASTM C-109)	3 days	4500 psi	(31.0 MPa)
	7 days	6500 psi	(44.8 MPa)
	28 days	8500 psi	(58.6 MPa)
Flexural Strength (ASTM C-348)	28 days	1250 psi	(8.6 MPa)
Splitting Tensile Strength (ASTM C-496)	28 days	600 psi	(4.1 MPa)
Important Data for Sika Armatec 110 as a Corrosion Protective Coating			
Water	Water Permeability at 10 bar (145 psi)	8.92 x 10 ⁻¹⁶ ft./sec.	
	Control	7.32 x 10 ⁻¹⁰ ft./sec.	
	Water vapor diffusion coefficient μ H ₂ O	110	
Carbon Dioxide	Carbon dioxide diffusion coefficient μ CO ₂	14000	

TEST DATA: Time-to-Corrosion Study

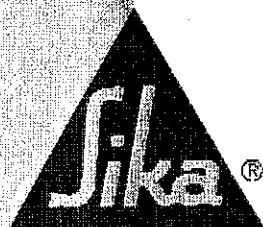
- Sika Armatec 110 more than tripled the time to corrosion
- Reduced corrosion rate by over 40%

Important Data for Sika Armatec 110 as a Bonding Agent

Bond Strength (ASTM C882)	14 days moist cure, plastic concrete to hardened concrete:		
	Wet on Wet	2800 psi	(19.3 MPa)
	24 hr. Open Time	2600 psi	(17.9 MPa)

Bond of Steel Reinforcement to Concrete (Pullout Test):

Sika Armatec 110 Coated	625 psi	(4.3 MPa)
Epoxy Coated	508 psi	(3.5 MPa)
Plain Reinforcement	573 psi	(3.95 MPa)



SikaSet® Mortar

Rapid-setting, portland-cement-based
patching compound

Description	SikaSet Mortar is a rapid-setting, portland-cement-based patching compound.
Where to Use	<ul style="list-style-type: none">■ When mixed with water it can be used to patch concrete, brick, and stucco.■ Excellent for basements, sumps, elevator pits, pools, tunnels, and sewers.■ Vertical and horizontal surfaces.■ Interior and exterior applications.
Advantages	<ul style="list-style-type: none">■ Use on dry, damp, or wet surfaces.■ Extended workability for tooling.■ Non-toxic, non-corrosive, non-rusting.■ Excellent resistance to freeze/thaw cycling.■ Rapid strength gain.
Coverage	725 cu. in./50 lb.
Packaging	50 lb. in a 5 gallon pail.

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

Shelf Life	One year in original, unopened container.
Storage Conditions	Store dry at 40°-95°F (4°-35°C) Condition material to 65°-75°F before using.
Color	Concrete gray
Setting Time (ASTM C-403)	15 minutes
Compressive Strength (ASTM C-109)	
1 day	2,600 psi (17.9 MPa)
7 days	6,600 psi (45.5 MPa)
Tensile Strength (ASTM C-496):	
7 days	400 psi (2.8 MPa)
28 days	700 psi (4.8 MPa)

How to Use

Surface Preparation

Chip away soft, deteriorated, unsound substrate. Clean cavity completely. Lightly dampen the substrate just prior to application.

Priming

For priming of reinforcing steel use Sika Armatec 110 EpoCem (consult Technical Data Sheet).

Concrete Substrate: Prime the prepared substrate with a brush or sprayed applied coat of Sika Armatec 110 EpoCem (consult Technical Data Sheet). Alternately, a scrub coat of SikaSet Mortar can be applied prior to placement of the mortar. The repair mortar has to be applied into the wet scrub coat before it dries.



Construction Solutions

How to Use

Surface Preparation **Cementitious substrates:** Should be cleaned and prepared to achieve a laitance and contaminant-free surface prepared in accordance with the requirements specified by the overlay or repair material by blast cleaning or equivalent mechanical means. Substrate must be saturated surface dry (SSD) with no standing water.

Steel: Should be cleaned and prepared thoroughly by blast cleaning.

Mixing Shake contents of both Component 'A' and Component 'B'. Empty entire contents of both Component 'A' and Component 'B' into a clean, dry mixing pail. Mix thoroughly for 30 seconds with a Sika paddle on a low speed (400-600 rpm) drill. Slowly add the entire contents of Component 'C' while continuing to mix for 3 minutes until blend is uniform and free of lumps. Mix only that quantity that can be applied within its pot life.

Application **As a bonding agent** - Apply by stiff-bristle brush or broom. Spray apply with Goldblatt Pattern Pistol or equal equipment. For best results, work the bonding slurry well into the substrate to ensure complete coverage of all surface irregularities. Apply the freshly mixed patching mortar or concrete wet on wet, or up to the maximum recommended open time, onto the bonding slurry.

Maximum recommended open time between application of Armatec 110 and patching mortar or concrete:

80°-95°F (26°-35°C)	6 hours
65°-79°F (18°-26°C)	12 hours
50°-64°F (10°-17°C)	16 hours
40°-49°F (4°-9°C)	wet-on-wet

For corrosion protection only - Apply by stiff-bristle brush or spray at 80 sq. ft./gal. (20 mls). Take special care to properly coat the underside of the totally exposed steel. Allow coating to dry 2-3 hours @ 73°F, then apply a second coat at the same coverage. Allow to dry again before the repair mortar or concrete is applied. Pour or place repair within 7 days.

Limitations

- Substrate and ambient temperature: Minimum 40°F (5°C)
- Maximum 95°F (35°C)
- Minimum thickness: As a bonding agent 20 mils.
- For reinforcement protection 40 mils
- (2 coats, 20 mils each).
- Not recommended for use with expansive grouts.
- Use of semi-dry mortars onto Sika Armatec 110 EpoCem must be applied "wet on wet".
- When used in overhead applications with hand placed patching mortars, use "wet on wet" for maximum mortar build thickness.
- Substrate profile as specified by the overlay or repair material is still required.
- As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur Hi-Mod 32.

Caution **Part A & B: IRRITANT; SENSITIZER** - Can cause skin sensitization after prolonged or repeated contact. Skin and eye irritant. High concentrations of vapor may cause respiratory irritation. Avoid skin contact. Use only with adequate ventilation. Use of safety goggles and chemical resistant gloves is recommended.

Part C: IRRITANT; SUSPECT CARCINOGEN - Contains crystalline silica, quartz (sand); cement. Skin and eye irritant. Dust may cause respiratory tract irritation. Avoid breathing dust. Use only with adequate ventilation. May cause delayed lung injury (silicosis). IARC list crystalline silica as having sufficient evidence of carcinogenicity to laboratory animals and limited evidence of carcinogenicity in humans. NTP also lists crystalline silica as a suspect carcinogen. Use of safety gloves is recommended. In case of high dust concentrations or exceedance of PELs, use an appropriate NIOSH approved respirator.

First Aid In case of eye contact, wash immediately with soap and water for 15 minutes; immediately consult a physician. In case of skin contact, wash with soap and water; consult a physician for irritation. For respiratory problems, remove person to fresh air and institute artificial respiration if necessary; consult a physician. In case of ingestion, immediately consult a physician. Wash clothing before reuse.

Clean-Up In case of spills or leaks, wear suitable protective equipment, contain spill, collect with absorbent material, and transfer to a suitable container. Ventilate area. Avoid contact. Dispose of in accordance with current, applicable local, state, and federal regulations.

KEEP CONTAINER TIGHTLY CLOSED
 NOT FOR INTERNAL CONSUMPTION
 CONSULT MATERIAL SAFETY DATA SHEET FOR MORE INFORMATION
 KEEP OUT OF REACH OF CHILDREN
 FOR INDUSTRIAL USE ONLY

Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current technical data sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor.

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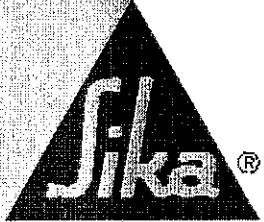
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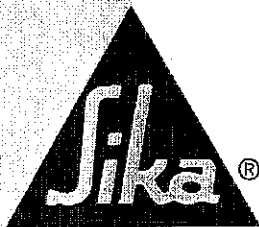
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POLITO AVENUE
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Mixing	Mix with clean water to obtain desired consistency. Do not over-mix. Do not over-wet. Do not re-temper.
Application	Trowel into place. Knead into honeycombs with rubber-gloved hand.
Limitations:	<ul style="list-style-type: none">■ Minimum application temperature of 40°F and rising at time of application.■ Use only potable water for mixing.■ As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur Hi-Mod 32.
Caution	Irritant; Suspect Carcinogen - Contains portland cement and sand (crystalline silica). Skin and eye irritant. Avoid contact. Dust may cause respiratory tract irritation. Avoid breathing dust. Use only with adequate ventilation. May cause delayed lung injury (silicosis). IARC lists crystalline silica as having sufficient evidence of carcinogenicity in laboratory animals and limited evidence of carcinogenicity in humans. NTP also lists crystalline silica as a suspect carcinogen. Use of safety goggles and chemical resistant gloves is recommended. If PELs are exceeded, an appropriate, properly fitted NIOSH approved respirator is required. Remove contaminated clothing.
First Aid	In case of skin contact, wash thoroughly with soap and water. For eye contact, flush immediately with plenty of water for at least 15 minutes, and contact a physician. For respiratory problems, remove person to fresh air.
Clean Up	In case of spillage, scoop or vacuum into appropriate container, and dispose of in accordance with current, applicable local, state, and federal regulations. Keep container tightly closed and in an upright position to prevent spillage and leakage. Mixed components: Uncured material can be removed with water. Cured material can only be removed mechanically.

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LIMITED WARRANTY: Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Technical Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor. NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKASHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKASHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.

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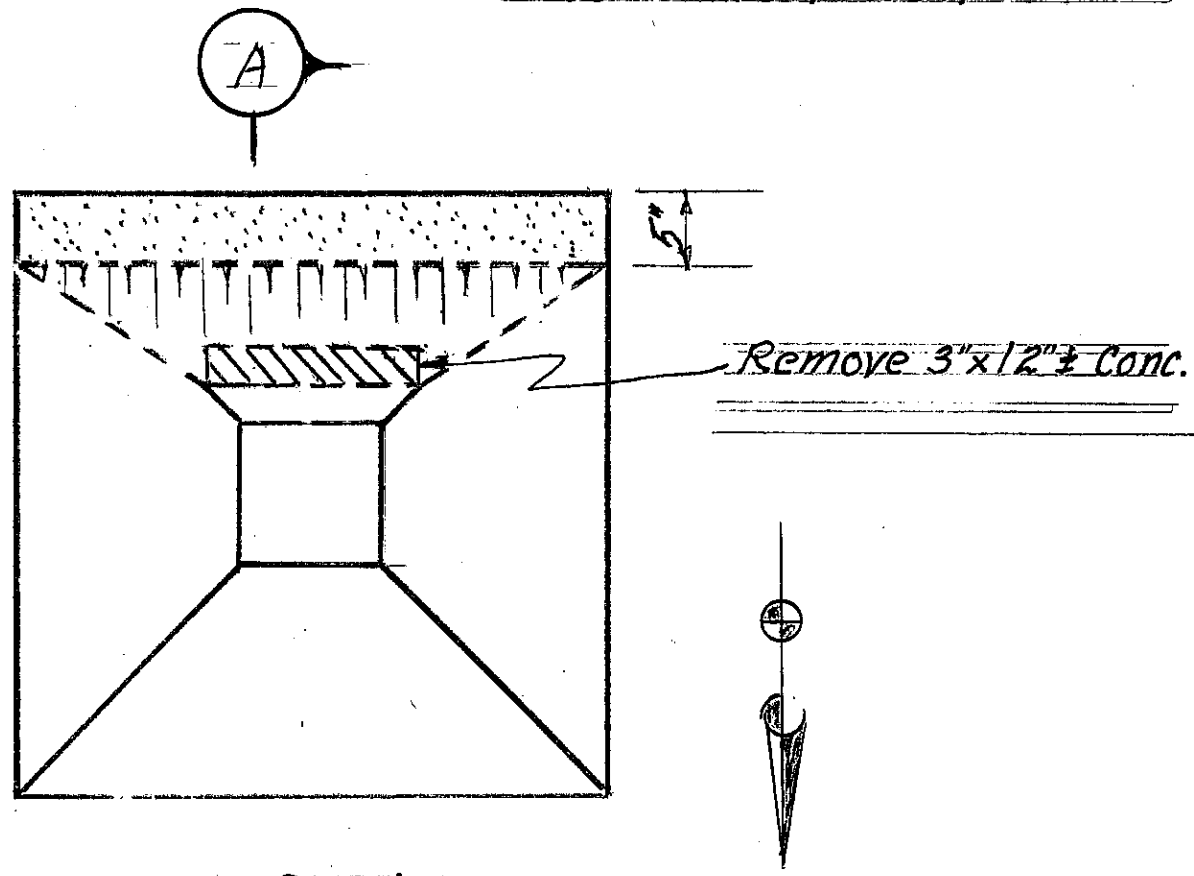
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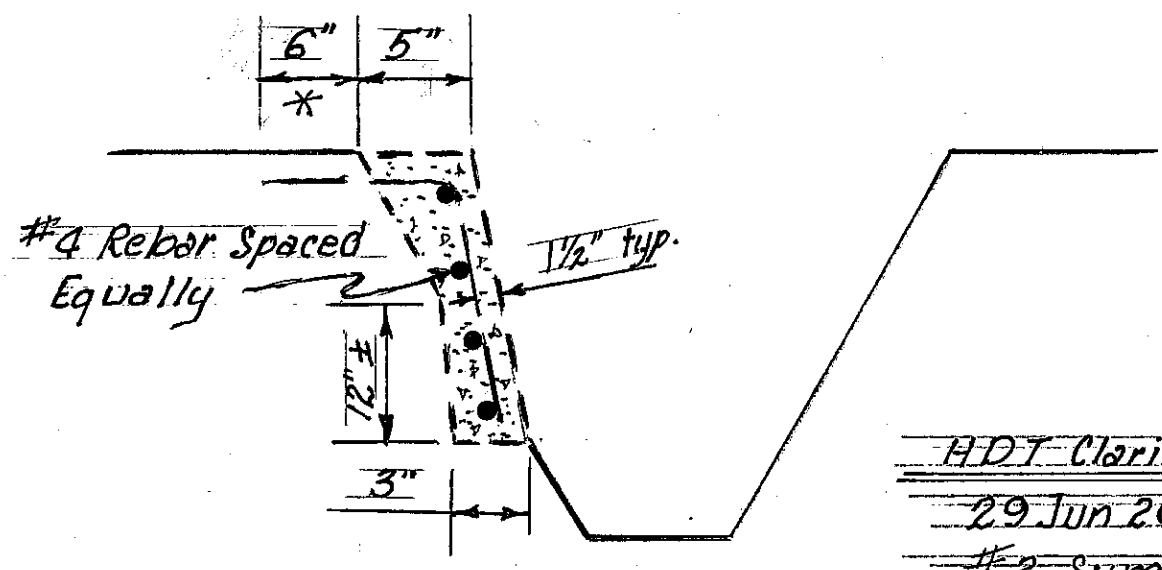


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Fountain, Co. 80817



*EIT HY 150 MAX
Fast Cure Hybrid Adhesive PLAN
Not to Scale



HDT Clarifier Modification
29 Jun 2011
#2 Sump

